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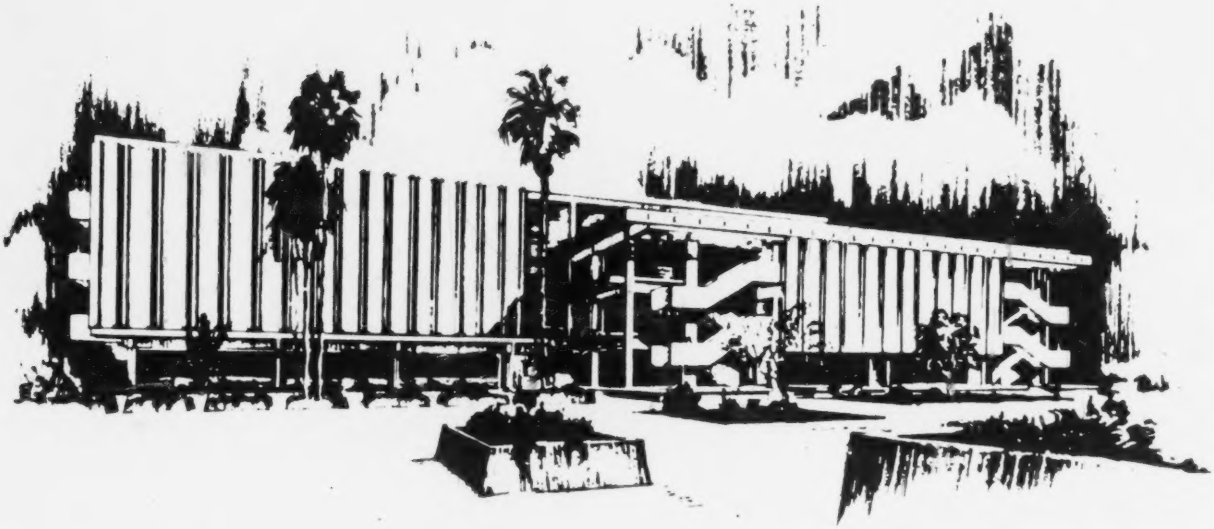
ARIZONA BUSINESS



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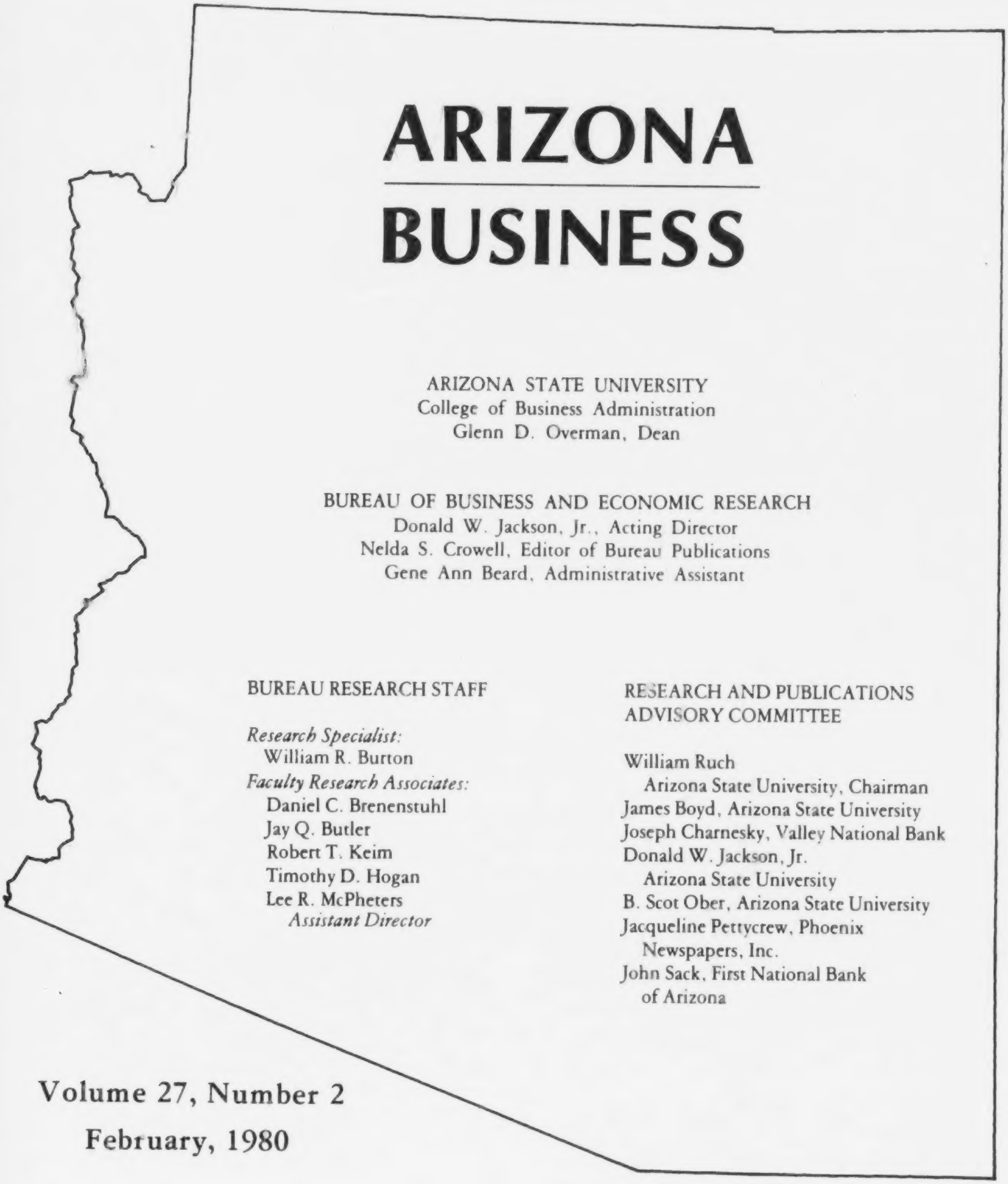

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Volume 27, Number 2
February, 1980

In This Issue

Arizona: A Quarter Century of Economic Progress . . 3
Richard D. Winkelman

Twenty-Five Years of Real Estate Progress 9
Jay Q. Butler

An Update of Nonstandard Work Schedules 16
George W. Bohlander
William B. Werther, Jr.
Michael N. Wolfe

Arizona Business Scene —
College of Business Administration:
Twenty-Five Years of Service 25

A Survey of Arizona Business Conditions 27
Harold Fearon

Arizona Sales of Electrical Power 28

Arizona New Housing Starts:
Monthly Report, December 29

Arizona Building Permits:
Monthly Report, December 30

Maricopa County Monthly
Retail Food Prices, January 32

Metropolitan Phoenix Consumer
Price Index, Fourth Quarter, 1979 33

Arizona Economic Indicators 36

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Report To The Reader

Editor's Note: *The College of Business Administration regrets that recent flooding forced postponement of the twenty-fifth anniversary program that was scheduled for February 20. The entire day-long program has been rescheduled for Tuesday, April 1, 1980, including a presentation by Dr. Peter Drucker at 3:00 p.m. in Gammage Auditorium. All events are open to the public free of charge.*

An anniversary is a time for looking back and looking forward — for reviewing the past, assessing the present, and contemplating the future. The twenty-fifth anniversary of the College of Business Administration at Arizona State University gives us an opportunity to do just that.

This silver anniversary issue of *Arizona Business* brings our readers three articles that are especially relevant in these times of change.

The first article, written by Dr. Richard D. Winkelman, follows the economy through the war years into the boom years of the 1950s and 1960s when Arizona entered an era of unprecedented economic sophistication. Manufacturing became the growth sector as electronics and aerospace industries dominated the industrial landscape and agriculture surrendered its lead on the economic scene.

The result of increased economic activity is especially evident in the real estate industry as seen in an article by Dr. Jay Q. Butler. Dramatic changes have occurred in the housing market: housing costs have skyrocketed; condominiums and townhouses have come into their own.

In the commercial sector, the apartment market is undergoing change as condominium conversions multiply; office space is in demand, and the shopping center has become a regional focal point.

Turning to new trends, Drs. George W. Bohlander, William B. Werther, and Michael N. Wolfe explore the nonstandard workweek in its four most popular forms: part-time hours, staggered hours, the shorter workweek, and flextime. Although acceptance has been slow, energy considerations, the need for increased productivity, and a shortage of skilled labor may well accelerate the use of nonstandard work schedules.

These three articles, written by the experts in their field, demonstrate once again that the College of Business Administration does not function in isolation. As we celebrate this twenty-fifth anniversary, we salute those who have made this institution the vibrant, living part of the community that it is.

Arizona: A Quarter-Century Of Economic Progress

RICHARD D. WINKELMAN

The twenty-five year period, 1955 to 1980, has witnessed the simultaneous rapid growth of the Arizona economy and the founding and rapid growth of the College of Business Administration at Arizona State University. (See "Arizona Business Scene," page 25 of this issue.) The purpose of this article is to survey the growth of the Arizona economy, which began to rise in 1955 from its long dependence on agriculture and mining to an economy that is increasingly dependent on its manufacturing sector.

This overview is divided into three parts. Part one provides a brief glimpse of the previous quarter-century, 1930 to 1954, setting the stage for part two, which provides a detailed view of the period, 1955 to 1980. Finally, part three provides a vision of the next twenty-five years, putting us into the twenty-first century.

The change from an agricultural economy to one that is based on manufacturing has been the story of Arizona's growth over the past twenty-five years. In honor of the twenty-fifth anniversary of the Arizona State University College of Business Administration, this article takes a timely look at the development of the state's economy and suggests some developments that can be expected in the future.

Richard D. Winkelman is Associate Professor of Economics in the Arizona State University College of Business Administration.

SETTING THE STAGE

During the decade of the 1930s, Arizona experienced the same phenomena as the national economy — depression. By 1933, the personal income of Arizonans in real terms had declined to approximately two-thirds of its 1929 level. Through the remainder of the decade, personal income advanced slowly but steadily except for 1938, a negative year for the entire country. Personal income in Arizona finally reached and surpassed the 1929 level in 1940. By that census year the state's population had reached 499,000.

World War II was the force that ended the Great Depression. It served as a significant stimulus to the Arizona economy beginning in 1941, even before the United States was directly involved in the war. In 1941, real personal income increased by 16 percent over 1940. Much of this increase was due to the large jump in the military payroll in Arizona as America prepared for the eventual war. As a state that relied heavily on agriculture, the impact of the war in Europe had also served to increase farm product prices by 25 percent.

Once actively involved in the war, federal government expenditures began to affect the Arizona economy dramatically. In 1942, the federal payroll increased from $29 million to $80 million. Expenditures on military installations served to increase construction payrolls from $12 million to $15 million and farm prices and income continued to rise. By the end of

1942, real personal income was 37 percent higher than in 1941.

The war-induced prosperity continued through 1943, but the rate of increase in personal income declined to 25 percent. Because of a continuing high level of military activity, the federal government payroll increased by $108 million, and population reached 692,000. The year 1943 marked the peak of war-induced prosperity; the next year personal income declined 7 percent as both military personnel and the military payroll declined. This decline continued through 1945 as the overall war effort began to wind down. In 1945 personal income declined very slightly as the military payroll and population declined even further.

As Arizona entered the postwar period, personal income continued to decline, but population began to grow rapidly. It was not until 1948 that the trend of declining personal income came to a halt. Real personal income increased by 8 percent in that year while population increased by 6 percent. Much of the population increase was from the inmigration of former military personnel who returned to enjoy the climate they were introduced to during the war and the availability of relatively low-cost home cooling devices that served to make the climate even more amenable.

As Arizona entered the 1950s, the expansion, begun in 1948, was now stimulated by the Korean War. A long-term consequence of this war is that it marked the development of the ordnance and electrical machinery component of the state's manufacturing sector. This was the beginning of the sophisticated aerospace and electronics industry that now dominates the Arizona economy. The result was an upsurge in manufacturing as a more and more important contributor to the economy. Prior to 1951, manufacturing employment accounted for 10 percent of the nonagricultural work force. From 1951 to 1954, and beyond, manufacturing accounted for almost 14 percent or more of the nonagricultural work force. All of the nonagricultural sectors of the economy saw employment increases with the smallest increase in mining, reflected in a relative decline for that traditional sector of the economy.

By 1955, Arizona had already demonstrated its now well-known capacity for economic growth. Population had increased by 66 percent from 594,000 at the end of World War II to 987,000. This represents an annual growth at the compound rate of 5.2 percent. Personal income increased 160 percent to $1.56 billion, a compound annual rate of about 10 percent. Per capita income had increased by 65 percent to $1,650, an annual compound growth in excess of 5 percent. The four "Cs" of the Arizona economy — cotton, cattle, citrus, and copper — were still of great importance by 1955, but the manufacturing sector was rising rapidly. Arizona's two major metropolitan areas, Phoenix and Tucson, were on their way to becoming major manufacturing centers, especially in high technology products.

THE ACHIEVEMENT OF ECONOMIC SOPHISTICATION

In the twenty-five years since 1955, Arizona's population has increased to 2,725,000, a rate of growth of 4.14 percent compounded annually. Personal income will have increased to about $24 billion, an increase of 11.3 percent compounded annually. This is a current dollar measure and includes all of the inflation that has occurred. The four "Cs" are still important to Arizona, but the early signs of industrial growth bore fruit, and high technology manufacturing has led Arizona upward to a new economic plateau and also integrated a relatively isolated geographic region into the total national economy.

Economic growth requires capital investment in tools that increase labor productivity in those economic sectors that produce goods for sale in more than the local market. This leads us to the concept of *basic* economic sectors as opposed to *induced* economic sectors. The basic economic sectors produce goods and services, the bulk of which are sold to non-Arizonans and generate a significant portion of the income received by Arizonans. In Arizona, the basic sectors are agriculture, mining, manufacturing, and tourism. The induced sectors include such things as services, wholesale and retail trades, much of residential construction, government, and the like. As the basic sectors grow and expand, the income that is generated exerts demands on the induced sectors, hence they expand as well.

Basic Economic Sectors

In general, rapid economic growth is associated with manufacturing development and the increased labor productivity that accompanies it. This certainly has been the case in Arizona over the past twenty-five years as the electronics industry and associated high technology producers have become a vital part of the Arizona economic landscape.

The importance of the basic sectors can be determined by an analysis of Table 1, which shows the

TABLE 1

DISTRIBUTION OF BASIC EMPLOYMENT ACROSS MAJOR SECTORS BY FIVE-YEAR AVERAGES

Year	*Total Basic Employment*	*Percent in Manufacturing*	*Percent in Mining*	*Percent in Agriculture*	*Basic Employment A Percent of Total Employment*
1955-59	155,580	25.5	10.2	64.3	41.2
1960-64	169,102	32.8	9.2	58.0	36.8
1965-69	189,440	42.4	9.4	48.4	34.8
1970-74	198,000	50.9	11.9	37.2	27.5
1975-79	211,740	55.3	10.8	33.9	23.9

Source. Valley National Bank, *Arizona Statistical Review*, various issues. Calculations by the author

average employment in the basic sectors for five-year periods. The total basic employment has increased continually; but more importantly, while the role played by the manufacturing sector has increased considerably, that played by agriculture has declined, and the proportion held by the mining sector has remained almost constant.

The data indicate that the manufacturing share of employment has more than doubled since the late 1950s, and the agriculture share has decreased by almost half. The more interesting effect is what has happened to basic employment as a portion of total employment. The decline from 41 percent to 24 percent indicates that high productivity manufacturing concentrated in urban areas is capable of supporting a larger, broader based set of induced sectors than an economy more dependent upon agriculture as the basic stimulus to economic activity.

The decline in agricultural employment in both relative and absolute terms does not mean that the agriculture sector is dying. It merely reflects the decrease in land utilized for agriculture through the encroachment of urbanization and the fact that agriculture, too, is becoming increasingly more capital intensive so that in absolute terms machines are being substituted for workers. The availability of water also imposes a severe constraint on any possible agricultural expansion. Even a massive water project like the Central Arizona Project is considered by some to be adequate only to maintain, not expand, arable acreage within the state.

The relative constancy of basic employment accounted for by the mining sector of the economy is due to the growth and dynamism of the copper mining sector. Arizona is the leading domestic producer of copper with more than half of domestic production. (See *Arizona Business*, January, 1980.) Over time, the development and opening of new mines has caused absolute employment increases. However, while the five-year average employment ratio exhibits stability, copper is a very volatile industry. Copper prices are subject to world supply and demand. As an industrial material, copper is subject to the vagaries of the business cycle and a host of unpredictable international phenomena; hence on a short-term basis, employment fluctuates considerably. At the present time, copper appears to be in an expansion phase and employment is expected to increase through 1980.

While copper mining and agriculture remain important in Arizona, the real story of economic expansion lies in the manufacturing sector. Table 1 shows the rapid relative growth of employment in the manufacturing sector from about 25 percent of basic employment in 1955-1959, up to 55 percent of basic employment in 1975-1979. This proportion should continue to increase for some time yet as there are better defined finite limits to agriculture and copper mining.

During the five-year period 1955-1959, employment in manufacturing averaged slightly less than 40,000. By 1975-1979, the average had risen to about 117,000, not quite a threefold increase in employment. Much of this expansion in employment has been in electronics and aerospace industries. From a few initial firms in the 1950s, this sector of Arizona's manufacturing has proliferated in both metropolitan Phoenix and Tucson. These firms, as well as others, are capital intensive and have raised worker productivity considerably in the past twenty-five years. Hence, increased manufacturing employment and output have raised personal income significantly over the past twenty-five years as well.

Table 2 shows the compound rates of change in average personal income, per capita income, and population by five-year periods. The table also includes

TABLE 2

PERSONAL INCOME DATA AND POPULATION PER FIVE-YEAR PERIODS
1955-59 to 1975-79

	Average Per Five-Year Period			*Compound Annual Rate of Change Per Five-Year Period (Percentage Increase)*		
Year	*Personal Income*	*Per Capita Personal Income*	*Population*	*Personal Income*	*Per Capita Personal Income*	*Population*
1955-59	$ 2,045,000,000	$1,819	1,124,000	8.22	3.04	5.02
1960-64	3,124,000,000	2,153	1,451,000	5.55	2.15	3.63
1965-69	4,641,000,000	2,808	1,653,000	8.89	6.91	1.86
1970-74	8,671,000,000	4,402	1,970,000	11.27	7.23	3.98
1975-79	15,709,000,000	6,535	2,404,000	12.07	8.23	3.58

Source: Valley National Bank, *Arizona Statistical Review*, various issues.

average data for the previously mentioned variables. In 1955-1959, personal income increased at a compound annual rate of 8.22 percent compared to the 12.07 percent rate from 1975-1979. With the exception of the slow growth period of 1960-1964, the rate of personal income growth has continually increased. The same applies to the changes in per capita income.

The changes in the compound rate of population growth from one five-year period demonstrate similar behavior but with a lag. The rate of growth in 1960-1964 is less than in the previous period, but the impact of the slowdown in per capita income doesn't slow population growth appreciably until the 1965-1969 period before it accelerates once again in the first half of the 1970s.

Owing to the nature of the income growth and population influx, the principal beneficiaries were Arizona's two Standard Metropolitan Statistical Areas (SMSA), Phoenix and Tucson. Maricopa County's population (Phoenix SMSA) increased from 420,000 in 1954 to 1,453,000 in 1978, an annual compound growth rate of 4.12 percent. The two metropolitan areas had a combined population of 1,974,300 which is 75 percent of the state's total. The two areas receive about 79 percent of the total personal income; Maricopa County alone generates approximately 60 percent of personal income with its 55 percent of the state's population. This is partly the result of the fact that 73 percent of the state's manufacturing employees work in Maricopa County.

Induced Economic Sectors

The term, *induced sectors*, implies that these sectors would not exist if there were no primary source of income. To a great extent this is generally true, but within the induced sectors there is some level of employment that might be considered basic. For example, that part of the wholesale and retail trades and services sector that is based almost exclusively on tourism might be considered basic. However, it is too difficult to draw the fine lines necessary for such an accounting. The same might be said for some part of federal government expenditures in Arizona and some portion of total construction activity. Tables 3 and 4 provide summaries of growth in the induced sectors of the economy. Table 3 presents the average level of induced sector employment and employment in each of the induced sectors for five-year periods, and Table 4 presents the employment in each induced sector as a percentage of total employment for each five-year period.

For all but the construction sector of the economy, Table 3 demonstrates the steady increase in employment for all sectors. The rate of growth is relatively slow for sectors like transportation/utilities and the federal government because of the fixed capacity of much of their activities. Large changes in population and overall economic activity require relatively small increases in these sectors to maintain adequate service levels. Sectors such as trades, services, and state and local government are very sensitive to population changes and changes in the level of economic activity, e.g., the need for additional clerks, waiters, school teachers is correlated highly with economic change. The construction sector employment behavior simply demonstrates the volatility of the construction industry, especially the residential component. The behavior demonstrated in 1965-1969 was a result of the "credit crunch" and other phenomena of the mid-1960s.

All of these trends and changes are demonstrated again in Table 4 in percentage terms, i.e., as a percent-

TABLE 3

AVERAGE EMPLOYMENT IN EACH INDUCED SECTOR PER FIVE-YEAR PERIOD

						Government		
Year	*Construction*	*Trade*	*Fire*	*Transport. Utilities*	*Services*	*Federal*	*State & Local*	*Total Induced*
1955-59	23,049	64,704	14,163	22,438	44,265	53.596		222.215
1960-64	30,941	85,350	18,701	25,164	55,094	23,034	51,773	290 057
1965-69	26,789	102,940	23,933	26,880	74,066	27,061	73,975	355,644
1970-74	52,813	150,357	37,234	34,390	112.089	31.869	103.298	522.050
1975-79	56,730	198.108	46,475	42,568	157.331	36,382	136,494	674,088

Source: Valley National Bank, *Arizona Statistical Review*, various issues. Computations by the author.

TABLE 4

AVERAGE INDUCED EMPLOYMENT AS PERCENT OF TOTAL EMPLOYMENT PER FIVE-YEAR PERIOD

						Government		
Year	*Construction*	*Trade*	*Transport. Fire*	*Utilities*	*Services*	*Federal*	*State & Local*	*Induced Total*
1955-59	06.1	17.1	03.7	05.9	11.7	14.2		58.8
1960-64	06.7	18.6	04.1	05.5	12.0	05.0	11.3	63.2
1965-69	04.9	18.9	04.4	04.9	13.6	04.9	13.6	65.3
1970-74	07.3	20.9	05.2	04.8	15.6	04.4	14.3	72.5
1975-79	06.4	22.4	05.2	04.8	17.8	04.1	15.4	76.1

Source: Calculated from Table 3. Last column shows the residuals of last column in Table 1.

age of total employment (agricultural plus nonagricultural). The volatility of the construction sector is illustrated by the slow growth in the transportation/utilities sector and the federal government. Their small absolute increases translate into percentage declines. The trade sector's share increased by more than five percentage points and the service sector increased by six percentage points. State and local government over the same period increased its share of employment by approximately five percentage points.

The more interesting phenomena, however, are observed by comparing Table 1 and Table 4. The significant increase of the manufacturing sector in providing basic employment is so powerful that it allows the basic sector to support a large induced sector in both absolute and relative terms. In modern industrial societies, the trend to more and more induced or service type employment is an important indicator of increased economic well-being. This is demonstrated by the income data in Table 2.

Most people are aware of the significant economic growth that has occurred based on private economic activity and that the role of government, generally, is to provide services in response to the needs of the private sector. Much of the activity of state and local government is of this nature. However, much of the federal government activity assumes the form of basic activity. Very simply expressed, the federal government spends considerably more in Arizona for military bases, water projects, highways, and routine government services than it removes from the state in various federal taxes. The difference of federal expenditures over tax receipts represents a significant injection into the economy and is akin more to cotton, copper, and transistors that are sold to firms in other states and other countries. Without going into annual detail in fiscal year 1978, the ratio of federal expenditures to federal tax receipts in Arizona was 1.92, i.e., nearly twice as much was spent as was collected. In 1977, the ratio was 2.19. Clearly the federal government has been a major stimulant to the Arizona economy.

The past twenty-five years have been years of rapid economic development. Over this span of time, Arizona has continually been ranked in the top ten states in terms of growth of income, growth of per capita income, growth in population, and growth in manufacturing output. The state now stands on a prosperous and sound economic base. A review of the

December, 1979, issue of *Arizona Business*, the forecast issue, provides detail for 1980.

THE FUTURE

What will Arizona look like in the year 2005?[2] It is expected that the composition of the basic employment portion of the Arizona economy will have changed considerably. Agricultural activity, as we know it today, will almost certainly be greatly diminished as a result of pressure from several sources. First, severe restrictions are expected to be placed on water, which will be allocated to alternative, more efficient uses, e.g., light industry and residential use. Farmland itself will be drastically reduced as it is absorbed by the growing metropolitan centers. The limited amount of land under private ownership will cause that land to be bid away from agricultural usage.

The copper mining sector of the economy is expected to maintain its current level of employment as new technology allows the exploitation of lower grade ores. In relative terms, copper mining, like agriculture, will decline in importance as the high technology manufacturing sector continues to expand.

Arizonans can expect a high rate of growth in manufacturing over the next twenty-five years. This growth will be aided by public investment in the growth and development of professional education in both business and engineering. This form of public investment will be crucial in providing the socioeconomic climate to accompany the many advantages provided by nature.

The developing technology of the electronics industry will provide the demand for increasing investment and employment. These demands will be supplied by the national capital market and the rapidly growing Arizona population, aided and abetted by higher education. Continuing pressure with respect to energy resources will place a premium on Arizona's available sunshine for ongoing research and development of solar energy.

All of these developments that can be seen in the future will contribute to higher real income and a continuation of the Arizona lifestyle. Barring catastrophic world events, not only Arizonans, but all the people of the United States and the world should have a better life to look forward to for themselves and for their children and grandchildren.

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[1] This section is adapted from Chapter 2, "Structure of the Arizona Economy," written by the author for *Arizona's Economy, Yesterday, Today and Tomorrow*, published as Occasional Paper, Number 12, Bureau of Business and Economic Research, College of Business Administration, Arizona State University, 1976.

[2] Although various opinions are promulgated regarding Arizona's future, the remarks in this section are the opinions of this author, based on past trends and current information.

Twenty-Five Years of Real Estate Progress

JAY Q. BUTLER

The real estate market in Maricopa County during the past twenty-five years can be characterized in two fundamental terms: growth and change. It cannot be denied that from 1954 to 1979 the market has grown, but it has also changed in response to the needs and demands of the Phoenix metropolitan area. Because past and current events are the foundation for the future, a historical examination can provide insight into the future real estate market.

This article examines the three main sectors of market activity — residential, commercial, and industrial — and the real estate industry in general for the purpose of identifying factors and trends that could affect the future market.

The real estate industry in Arizona, over the past twenty-five years, has naturally exhibited exceptional growth. In addition, however, it has also shown considerable change, both in the market and in the industry itself. In keeping with the twenty-fifth anniversary of the Arizona State University College of Business Administration, this article looks at the key developments in the residential, commercial, and industrial sectors, and the real estate industry as a whole, with a view toward some of the changes that can be expected in the years ahead.

Jay Q. Butler is Assistant Professor of Real Estate in the Department of Finance, College of Business Administration, Arizona State University. He is also a Faculty Research Associate in the ASU Bureau of Business and Economic Research.

SECTORAL CHANGE

The Phoenix metropolitan area has not only grown in population but also in its commercial and industrial base. Over the past twenty-five years, the needs and demands of the people as well as the changing economic activity have required increasing diversity in the physical products that comprise the real estate market — the places in which people live, work, and shop. Thus, the residential, commercial and industrial sectors have reflected the growth and change that has characterized the past twenty-five years in the Phoenix metropolitan area.

Residential

The residential sector consists of single-family dwellings (detached units and townhouse/condominium units) and duplexes. Apartment complexes are discussed in the commercial sector.

Because shelter is a primary need, the residential sector has been and will continue to be the dominant element of market activity. This need, coupled with a rapidly growing population, has resulted in tremendous activity in the Maricopa County residential sector. Since 1967, the (detached) single-family inventory has increased by 199,609 units (188,574 to 388,183 units), while the townhouse/condominium inventory has increased by 38,145 units (3,133 to 41,278 units; see Table 1). The growth in Maricopa County New Housing starts and Building Permits can readily be seen in Tables 2 and 3. Although high levels of growth have occurred, the relative share of activity represented by the residential sector has declined from 82 percent of total issued permits and 71 percent of total dollar value in 1954 to 63 percent of total issued permits and 61 percent of total dollar value in 1978.[1] (See Table 3.) This

TABLE 1

HOUSING INVENTORY FOR MARICOPA COUNTY

Year	*Single Family Units*	*Percentage of Total Housing Inventory*	*Townhouse-Condominium*	*Percentage of Total Housing Inventory*	*Multiple Family Units*	*Percentage of Total Housing Inventory*	*Mobile Home Pads*	*Percentage of Total Housing Inventory*	*Total*
1967	188,574	71	3,133	1	54,867	21	20,154	7	266,728
1968	206,072	70	4,557	2	61,033	21	20,806	7	292,468
1970	225,108	68	6,396	2	71,003	21	29,701	9	332,208
1972	269,246	64	13,334	3	93,338	22	47,588	11	423,506
1974	302,765	62	28,019	6	105,160	22	50,509	10	486,453
1976	319,661	63	30,937	6	104,416	20	50,786	11	505,800
1978	362,167	64	35,789	6	111,370	20	52,376	10	561,702
1979	388,183	65	41,278	7	117,843	20	52,760	8	600,064

Source: Maricopa County Housing Study. Maricopa County Housing Study Committee.

TABLE 2

MARICOPA COUNTY HOUSING STARTS[a]

1961-1979

Year	*1 Family*[b]	*2-Family Duplex*	*3-4 Families*	*5 or More Families*	*Housing Units*
1961	11,590	226	232	135	15,006
1962	7,639	301	397	273	14,021
1963	5,650	560	749	397	15,052
1964	4,627	335	361	310	11,207
1965	3,721	71	75	107	5,971
1966	4,069	124	32	148	6,095
1967	4,685	143	75	159	7,629
1968	7,204	288	170	182	11,090
1969	12,617	383	178	342	19,250
1970	13,253	494	341	364	20,630
1971	21,038	419	581	716	34,249
1972	22,452	364	429	465	37,627
1973	18,681	395	378	348	30,686
1974	12,210	189	105	307	21,401
1975	10,096	26	28	14	11,048
1976	12,806	40	65	92	15,608
1977	25,037	106	73	164	29,648
1978	32,962	260	199	441	46,351
1979	24,128	174	270	518	38,239

[a] For detailed description of the series, see *Arizona Business*, December 1978.

[b] Includes mobile homes.

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University

TABLE 3

MARICOPA COUNTY BUILDING PERMITS[a]
1954-1979

	RESIDENTIAL[b]		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
Year	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
1954	11,484	71,347,533	1,083	18,483,763	56	1,417,350	1,331	8,397,748	13,954	99,646,393
1955	10,129	83,709,154	1,358	20,892,310	105	2,354,590	3,039	7,709,163	14,626	114,665,217
1956	11,381	77,840,636	1,274	27,330,591	158	6,628,841	4,295	9,519,368	17,108	121,319,436
1957	14,235	100,635,648	1,321	23,292,937	218	8,165,101	4,172	12,869,732	19,946	144,963,418
1958	16,792	124,027,140	1,734	40,353,143	206	7,232,439	5,573	24,557,392	24,305	196,171,114
1959	19,241	136,802,502	1,966	54,717,147	317	12,634,764	6,829	35,849,177	28,353	240,003,590
1960	20,198	128,883,546	2,093	58,367,743	226	5,463,451	6,602	29,904,791	29,119	217,619,531
1961	19,205	125,493,684	2,685	57,650,533	231	10,765,747	7,375	39,462,840	29,496	233,372,804
1962	15,210	85,907,833	2,518	86,548,679	200	11,775,407	7,231	27,401,934	25,159	211,633,853
1963	12,627	72,440,867	2,980	107,341,155	179	6,638,332	7,986	35,047,676	23,772	221,468,030
1964	10,963	61,339,435	2,340	79,816,289	180	7,742,476	8,446	27,293,168	21,929	176,191,368
1965	9,590	52,972,642	1,972	38,560,864	205	7,679,381	8,633	37,053,436	20,400	136,266,323
1966	9,456	59,962,880	2,276	52,038,691	236	28,834,321	9,606	29,778,571	21,574	170,614,463
1967	10,267	69,813,188	1,807	56,066,140	184	5,723,018	10,023	39,588,105	22,281	171,190,451
1968	13,175	111,296,614	1,968	66,336,448	200	7,909,605	12,803	40,620,792	28,146	226,163,459
1969	19,228	196,879,137	2,565	114,238,689	260	20,834,408	15,949	62,112,375	38,002	394,064,609
1970	20,844	210,882,437	2,475	141,850,399	201	16,304,498	16,095	60,962,865	39,615	430,000,199
1971	29,587	339,793,152	3,107	202,999,014	189	15,431,130	17,664	92,191,196	50,547	650,414,492
1972	30,934	377,767,808	2,952	311,791,705	277	24,151,743	19,674	107,262,400	53,837	820,973,656
1973	26,901	362,539,281	2,958	299,527,941	348	28,351,732	20,109	123,780,631	50,316	814,199,585
1974	19,784	250,799,926	2,748	280,704,137	358	34,647,097	13,974	113,696,044	36,867	679,847,204
1975	18,013	212,970,324	2,232	121,625,098	315	30,081,198	12,944	119,193,098	33,554	483,869,718
1976	21,035	282,481,469	2,295	134,722,307	272	30,822,901	14,053	141,733,842	37,655	589,759,709
1977	33,749	748,006,700	1,283	151,208,456	301	38,117,445	17,021	163,953,503	52,534	1,101,286,104
1978	41,032	997,049,216	1,925	374,012,358	436	49,953,361	21,971	206,173,370	65,364	1,627,188,305
1979	32,990	751,562,454	2,207	464,555,779	512	128,181,527	24,254	279,252,629	59,963	1,623,552,388

[a] For detailed description, see *Arizona Business*, December, 1978.

[b] Includes mobile homes.

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

change demonstrates the response of the real estate market to growth and diversification of the economic base within the Phoenix metropolitan area.

Within the residential sector, interrelated changes have occurred in both the cost or value of housing and in the physical product itself — the dwelling. In 1958, the median value of a single-family home was $10,885; it had risen to $43,771 in 1978. (See Table 4.) Much of this increase has occurred in the last few years in response to increasing demand and higher costs for materials, labor, financing, and land. These increases in housing costs are especially evident in the new-home sector. Based on advertising in 1955, a new home could be purchased in the metropolitan Phoenix area for approximately $8,000 with monthly payments of $55 including principal and interest.[2] In 1979, the average price of a conventionally financed new home was reported to be $80,000 with monthly payments, principal and interest, in excess of $575.[3]

Although the higher cost of construction represents a share of the total increase in housing costs, some of the increase is also due to changes in the product. In 1955 the new home did not normally include refrigeration, appliances, carpeting, and other amenities that are standard in today's new homes.

Over the past few years, people have come to view a home not only as a shelter, but also as an investment that appreciates quickly and greatly in value. Thus, expectation and demands relative to housing have changed dramatically and people have been willing to devote an increasing proportion of their income to housing. In 1958 (see Table 4), the median value of a home

TABLE 4

REAL ESTATE MARKET ACTIVITY
FOR MARICOPA COUNTY

Year	*Total Population*	*Number of Households*	*Median Income ($)*	*Median Home Values($)*	*Median Rent ($)*	*Total Real Estate Transfers*	*Total Recorded Mortgages*	*Net Assessed Valuations*
1958	580,000	n/a	5,690	10,885	n/a	44,775	n/a	538,674,654
1960	663,510	n/a	6,502	12,710	80	56,942	n/a	689,211,962
1962	775,000	189,533	6,580	12,788	n/a	62,961	23,875	777,008,000
1964	833,000	209,300	6,787	13,534	78	63,642	26,343	889,728,000
1966	870,000	231,000	6,935	14,089	89	57,554	20,206	1,025,285,000
1968	914,000	258,700	8,137	14,176	101	67,999	26,826	1,074,314,000
1970	969,425	320,600	9,392	18,372	127	80,999	33,403	1,146,471,000
1972	1,180,000	387,400	10,692	22,198	136	110,710	62,178	1,385,224,000
1974	1,277,000	456,071	11,956	27,650	153	101,983	44,756	2,119,062,000
1976	1,351,000	477,000	13,105	31,338	170	100,169	44,728	2,678,051,825
1978	1,463,000	533,000	15,344	43,771	210	145,024	81,145	3,321,826,293

Sources: Inside Phoenix (Phoenix Newspapers, Inc.), various issues; *Arizona Statistical Review* (Valley National Bank); *Maricopa County Housing Study*, Maricopa County Housing Study Committee.

($10,885) was nearly two times the median household income ($5,690), while in 1978 it was closer to three times the median household income ($43,771/-$15,344). In addition, more of the homeowners and home purchasers need two sources of income to support their shelter demands.

Besides the economic changes, some social changes have occurred that have affected the residential sector. Some of the fundamental changes are the decreasing size of households from 3.7 to 2.8 people per household (derived from Table 4), the increasing number of retired people, and the increasing number of single people purchasing homes. Although these changes have affected all aspects of the residential sector, they are probably most closely related to an increasing demand for townhouse/condominium units. These units tend to be smaller, require less maintenance, and are generally lower in cost than the typical detached housing unit.

Although the mobile home market is viewed as a source of low cost housing, the market has been relatively stagnant over the past few years. (See Table 3.) This is due to several reasons: consumer indifference, which occurred when single-family dwellings were readily available and affordable; local government regulations concerning the construction of the mobile home, particularly fire and safety codes; and park development, which often reflected a view of tenants as transients. Also, because many existing parks are restricted to adults, low-income families have had to rely on the rental market of apartments and single-family dwellings. Due to escalating costs of purchasing or renting a housing unit, the mobile home market could have some resurgence as a purveyor of low-cost housing.

Commercial Sector

The commercial sector, which includes apartment complexes, office buildings, and shopping centers, has become very important in supplying structures for a rapidly growing and changing economic base.

The apartment market, like the other components of the real estate industry in Maricopa County, has been confronted with many social and economic changes. Nevertheless, although the number of apartment units increased from 54,867 in 1967[4] to 117,843 units in 1979 (see Table 1), the relative share of the total housing inventory has remained constant at approximately 20 percent.

Historically, the apartment market has been an important element in providing low-cost housing. Now, however, although rents have increased (see Table 4), the cost of operating an apartment complex has increased at a greater rate. Thus, it has become increasingly difficult to supply rental units profitably. The primary demand for apartment units has been from couples without children, and singles. However, these people have also shown a tendency to purchase homes in the townhouse/condominium market. This tendency, coupled with operational problems, has led to growing numbers of condominium conversions. Thus, there has been increasing concern about future sources of low-income housing.[5]

In recent years, the Phoenix metropolitan area has become a popular location for national and regional headquarters of large companies. Furthermore, as the area has grown, a corresponding increase has been evident in the kinds of professions that require office space, such as law, accounting, insurance, and real estate, resulting in an increasing need for office space. Not only has the downtown/midtown office space increased, but demand and supply of office space in outlying areas has increased.

In 1954, the Phoenix metropolitan area had nine major office structures (each containing more than 10,000 square feet) with a total of 362,602 square feet, the largest structure being the Security Building Complex. In 1979, the area had 308 major office structures, with 10.4 million square feet of office space (see Table 5). Office space has also expanded outside the central corridor: Scottsdale went from eighteen office structures with a total of 720,796 square feet in 1977 to twenty-three structures with a total of 1,026,830 square feet in 1979; the Tempe/Mesa area went from twenty-three office structures with 572,663 square feet in 1977 to thirty-seven structures with 846,796 square feet in 1979.[6]

One of the major types of development during the past twenty-five years has been the shopping center. Table 5 shows the steady increase in the number of centers. Although the neighborhood center, which revolves around a supermarket has been fairly common in the Valley, a major change is the evolvement of the regional or super-regional center. Park Central was one of the early large centers (1956) with 338,000 square feet of gross building area.[7] Now, there is also Metrocenter with 1,600,000 square feet, Chris-Town with 1,250,000 square feet, and Fiesta Mall with 1,068,963 square feet.[8] These and other large centers provide shoppers with a wide selection of stores and goods. The typical neighborhood shopping center has grown in size and scope to better serve shoppers with a wide range of stores and services. Early centers contained 35,000 to 45,000 square feet while the newer centers are larger with 50,000 to 90,000 square feet.

Industrial

The Phoenix metropolitan area has increasingly become the center of the electronic and computer industries and other technology oriented industries. Some of the firms have been in the Valley for many years, but new firms are rapidly moving in, and existing firms are expanding.

In addition to these large companies, many other manufacturing and distribution firms are moving into the Valley, attracted by the climate, quality of life, positive attitude toward business, transportation, and availability of a skilled labor force. The continued availability of these factors ensures the continued economic growth and diversification of the area's economic base, which should provide the impetus for the further growth of the Phoenix metropolitan area.

Much of the industrial development has occurred within the confines of industrial parks. This form of development provides a controlled environment for the construction of industrial structures. Currently, there

TABLE 5

COMMERCIAL DEVELOPMENT

	Shopping Centers			*Office Buildings*[a]	
Year	*Total Number Centers*	*Total Number Businesses*	*Gross Building Area (Sq. Ft.)*	*Total Number Buldings*	*Leasable Area (Sq. Ft.)*
1954	17	247	711,810	9	362,602
1957	26	388	1,505,059	13	500,602
1961	58	868	4,632,095	40	2,107,649
1964	91	1,323	8,232,750	51	2,464,911
1969	129	2,001	12,990,360	69	3,571,838
1970	141	2,116	14,470,096	72	3,877,838
1973	169	2,773	16,502,318	127	6,671,405
1975	204	3,154	24,856,476	162	8,252,885
1979	308	5,491	32,485,000	204	10,389,735

[a] Office Building containing more than 10,000 square feet.

Sources: Phoenix Shopping Center Surveys, 1957, 1965, 1975 (First National Bank of Arizona); *1979 Metropolitan Phoenix Shopping Center Directory* (Valley National Bank); *Metropolitan Phoenix Office Space, 1974,* (First National Bank of Arizona); Office Market Survey for Phoenix Metropolitan Area, 1979 (Del Webb Realty and Management Co.).

are 100 industrial parks within the Phoenix metropolitan area.[10] Most of the early parks were developed around the airport and railroad yards. Now, more industrial development is following the freeways into Tempe, Chandler, North Phoenix, and Glendale. As the economic base grows, it can be expected that spatial diversification will continue into outlying areas of the metropolitan area. As energy costs increase, the movement of industry toward residential areas can have a beneficial impact in reducing transportation costs.

REAL ESTATE INDUSTRY

Just as the market has grown and changed, the organization of the real estate industry has also changed. In 1954, 655 brokers and 1,407 salespersons[11] were licensed in Maricopa County, while in 1979 there were over 1,500 brokers and over 11,000 salespersons. Besides the increase in people, a fundamental change has occurred in the organizational framework. The real estate market is becoming increasingly served by large local firms and by national organizations.

Twenty-five years ago, the Phoenix real estate market consisted largely of local brokers and developers. In the area of brokerage, the Phoenix metropolitan area has seen the entry of a growing number of national franchise firms or networks. (See January, 1980, issue of *Arizona Business*.) Furthermore, several national firms have enlarged their roles in the local market. Not only do these firms, franchises, and networks service the local market, they also provide a national scope for activity in the real estate market. Additionally, local firms have established offices throughout the Valley in response to a growing market.

Because Phoenix is a growing region, the real estate development firm has been an important element of the real estate market. Tremendous growth has been experienced by many local firms; in addition, as in brokerage, national firms have entered the market. An active real estate market has a consuming need for financial resources. Some of these needs have been fulfilled by local financial institutions. In all developing markets, local institutions cannot supply all of the needed financial resources, so again national firms have become increasingly involved in financing real estate projects within the Phoenix metropolitan area.

The growth of local firms and the increased involvement of firms with national or even international interests is not unique to the Phoenix market, for it has occurred in all growing regions. Furthermore, real estate firms have grown and expanded their scope to better service their markets with required managerial and financial resources.

FUTURE PERSPECTIVE

The Phoenix metropolitan area has grown because it provides an excellent place in which to live and work, due mainly to the area's climate, quality of life, and location. These factors are still important and should provide for the continuing growth of the Phoenix metropolitan area and the real estate market. However, the legal, social, and economic environment of growth will change. Additional legal regulations at the federal, state, and local levels via environmental controls, planning, and zoning will have a direct impact on development activity.

Of primary concern will be the economic environment. In the past, growth has occurred with relatively inexpensive resources, especially energy and financing. Future growth will have to take place within an economic environment of scarce and expensive resources. The cost of energy, especially fossil fuels, will continue to increase, affecting the costs of construction, utilities, and transportation. Financing costs for development and purchase will also continue to increase. In order for the real estate market to expand profitably, it will have to produce products in response to a restrictive economic environment and changing market needs and demands.

Because the residential sector is a large element of the market, it will probably be greatly affected by the changing environment. The cost of housing will continue to rise (although probably not as fast as it has recently), requiring the continued increase in the number of two-income households. In summary, the future home will probably be—

—smaller with fewer partitioned rooms;
—more energy efficient;
—closer to major sources of employment;
—constructed with large multipurpose rooms and smaller private areas;
—located with communal parking areas;
—increasing in density with more townhouses and condominiums.[12]

Although the home has always been important, it will increase in importance as people spend more time at home because of fuel shortages and costs, shorter workweeks, advances in personal electronics, and the rising costs of entertainment and travel.[13] Thus, people will probably expect more amenities in the home and neighborhood and will be willing to pay for them via their two sources of income.

In order to reduce the cost of purchasing and holding land, increased interest has developed in leasing land for all forms of real estate development. Instead of purchasing land, the developer and subsequent users would lease the land from the owner. Because the State of Arizona owns approximately 10 percent of the land in Maricopa County, the land lease could be used as a means for producing revenue and controlling the development of state lands. Furthermore, some private landowners prefer land leases because the arrangement enables them to participate in the appreciation of the land value arising from a successful development. The land lease can provide the developer with many advantages while protecting and enhancing the economic benefits of the land owner.

Generally speaking, real estate development has shown a tendency to expand outward from the central city in what is often termed "urban sprawl." Unlike many other cities, where the outward movement involved predominantly residential development, the Phoenix metropolitan area has also experienced decentralization of commercial and industrial development. Thus, people are able to live near major sources of employment and shopping. It is expected that future development will tend to be more concentrated, such as the Urban Village[14] concept proposed in the City of Phoenix, to reduce transportation costs.

Nevertheless, future development will also probably continue to move outward with concentration in shopping centers and industrial parks. Office buildings will become more common in outlying areas as more firms open branch offices to better service their markets. Thus, a major factor in future development and land use will be continuing efforts to reduce the costs of transportation.

Because the Phoenix metropolitan area is very new, limited concern has been shown for redevelopment. However, in response to both transportation costs and the need to revitalize the central core of Phoenix, redevelopment of structures and change in land usage will become more common.

While it is always a challenge to supply real estate in a rapidly growing market, the ensuing years will see a new environment that will affect all aspects of the real estate market. It will require increased management skills, creative financing for funding development and purchases, new land use concepts, and different approaches to construction. Thus, the next twenty-five years will be exciting and challenging times as the real estate industry provides the product to satisfy the changing needs and demands of the growing Phoenix metropolitan area.

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[1] Because of the decline of the residential sector in 1979, the relationship is outside of the expected situation.

[2] *Arizona Republic*, February 6, 1955.

[3] *News*, Federal Home Loan Bank Board, December 14, 1979.

[4] The year 1967 marks the beginning of the series of consistent data on apartment units.

[5] Urban Land Institute, *Land Use Digest*, January, 1979; The National Research Bureau, *Real Estate Trends*, June, 1978; *California Real Estate Indicators*, Fall, 1978.

[6] *Annual Office Market Survey for Phoenix Metropolitan Area*, Del E. Webb Realty and Management Co., 1979.

[7] *Phoenix Shopping Center Survey*, First National Bank, 1961.

[8] *1979 Metropolitan Phoenix Shopping Center Directory*, Valley National Bank, 1979.

[9] Ibid.

[10] *Inside Phoenix, 1979*, Phoenix Newspapers, Inc., 1979.

[11] *Arizona Statistical Review*, Valley National Bank, 1954.

[12] *Land Use Digest*, Urban Land Institute, October, 1979.

[13] Ibid.

[14] The urban village concept proposes "villages" within the larger metropolitan area, each of which integrates industrial, commercial, and residential development into a concentrated planned environment.

An Update of Nonstandard Work Schedules

GEORGE W. BOHLANDER
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One hundred years ago, the average workweek was eleven hours per day, six days a week. By the time Arizona State University's College of Business Administration was founded twenty-five years ago, the average workweek was eight hours per day, only five days a week. Currently, in 1980, on the College's Silver Anniversary, the five-day forty-hour workweek is still the standard. However, during recent years, a variety of nonstandard workweeks have challenged the near universality of this traditional workweek.

Although numerous innovations exist, four work schedules are the most common challengers: part-time schedules, staggered hours, flextime, and shorter workweeks.

Part-time schedules are defined for this study as workweeks that require employees to work regularly thirty hours per week or less. These schedules commonly are combined with traditional forty-hour workweeks in firms with daily or weekly variations in workloads.

Part-time and staggered hours have received moderate acceptance in Arizona, particularly by nonmanufacturers. In the case of the shorter workweek and flextime, however, the disadvantages are perceived to outweigh the advantages.

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Staggered hours are work schedules where the employer requires different starting and ending times for different groups of workers. This schedule usually does not affect the length of the workweek, which often remains at forty hours per week. Instead it is most commonly used to relieve traffic, parking lot, and employee cafeteria congestion.

Flextime permits employees to work flexible hours. Employees are allowed to select their own starting and ending time, individually or by work groups. Usually, they are required to be at work during certain set core hours, such as 9:00 a.m. to 3:00 p.m. It is up to the employees to decide whether they want to start earlier or work later, as long as they work forty hours per week.

Shorter workweeks usually require forty hours of work per week in less than the traditional five days. The most common example is four days, ten hours each.

All of these work schedules operate without any legislative backing. They have emerged in response to the business demands faced by employers and the desires of their workers. However, just as the *Fair Labor Standards Act* institutionalized the five-day, forty-hour workweek, a new "standard" workweek could emerge through Congressional or legislative enactments. For example, HR 1784 was introduced in Congress during fall, 1979. It calls for a standard workweek of thirty-five hours and double time for overtime;[1] and, although not considered likely to pass, HR 1784 demonstrates that the traditional workweek is not permanently etched into the nature of employment.

During the next twenty-five years, it is very possible that the traditional workweek of five, eight-hour days will fade. Demands for change are expected to come from Congress, unions, employees, and employers who seek new work schedule accommodations. The motivations for change are nearly as numerous as those who are seeking the changes. Congress and unions often see shorter workweeks as a means of reducing unemployment; workers perceive opportunities for greater leisure time and increased autonomy; and employers hope for improved productivity, recruiting, and retention of their workforce.[2]

These pressures for change will most likely lead to a gain in popularity for a variety of work schedules. Although the eight-hour five-day pattern will dominate for years to come, many Arizona employers are beginning to apply other schedules. This article reports the use of different work schedules in Arizona, based on a survey of Arizona employers conducted during the summer of 1979.

SURVEY RESPONDENTS

Questionnaires were mailed to 649 employers. Included in the survey were major governmental entities including all county governments, city governments with a population of 25,000 or more, and the Arizona State Personnel Commission. All manufacturers with thirty or more employees were surveyed, as were all major public utilities, health care institutions, and financial institutions. Questionnaires also were mailed to enterprises engaged in construction, retail and wholesale trade, restaurants, printing, newspaper publishing, and mining.

Usable replies were received from 173 respondents for a response rate of 27.7 percent. As Table 1 shows, 55.5 percent of the usable questionnaires were returned by manufacturers; nonmanufacturers returned 44.5 percent of the usable replies.[3] The manufacturers' responses favored firms with 200 employees or less, while responses from nonmanufacturers favored larger organizations having more than 500 employees. This pattern of responses provided a representative sample of 649 enterprises included in the original mailing.

SURVEY RESULTS

The purpose of this study was to augment national information on work schedules by providing empirical data about these practices in Arizona. To make the survey results more useful for Arizona managers, comparisons between the manufacturing and nonmanufacturing sectors are also presented.

TABLE 1

DISTRIBUTION OF RESPONDENTS
BY NUMBER OF EMPLOYEES

Manufacturers (N = 96)

Enterprise Size	*Number of Respondents*	*Percentage of Respondents*
1-75	32	33.3
76-200	27	28.1
201-500	19	19.8
More than 500	18	18.8
TOTAL	96	100.0

Nonmanufacturers (N = 77)

Enterprise Size	*Number of Respondents*	*Percentage of Respondents*
1-75	16	20.8
76-200	16	20.8
201-500	12	15.6
More than 500	33	42.8
TOTAL	77	100.0

Source: 1979 statewide survey of Arizona employers conducted by the authors.

Perceived Usage by Employers

An ongoing concern of many managers is the actual usage of nonstandard work schedules in other firms. Table 2 presents the adoption rates for Arizona employers. As can be seen from the table, distinct differences exist between the manufacturing and nonmanufacturing sectors. The responses indicate a greater usage for each schedule by nonmanufacturers, particularly for part-time and staggered hours. Part-time schedules are prevalent in 70.1 percent of nonmanufacturing organizations; and 62.3 percent of the nonmanufacturers use staggered hours. The adoption rate for part-time and staggered hours by manufacturers is 38.5 percent and 44.8 percent respectively.

Both flexible hours and the shorter workweek have considerably lower utilization when compared to part-time or staggered hours. Both flextime and the shorter workweek have been adopted by 15.6 percent of the reporting nonmanufacturing organizations. This compares to a utilization of 9.6 percent for flexible hours and 11.5 percent for the shorter workweek by manufacturers.

TABLE 2

ADOPTION OF NONSTANDARD WORK SCHEDULES BY MANUFACTURERS AND NONMANUFACTURERS

Manufacturers (N = 96)

		Percentage of Employers That Reported —			
Nonstandard Work Schedule	*No Adoption*	*Fewer Than 25 Percent*	*25 to 49 Percent*	*50 to 100 Percent*	*Total*
Part-time	61.5	38.5	0	0	100.0
Staggered hours	55.2	17.7	6.3	20.8	100.0
Flexible hours	90.6	6.3	1.0	2.1	100.0
Shorter workweek	88.5	6.3	3.1	2.1	100.0

Nonmanufacturers (N = 77)

		Percentage of Employers That Reported —			
Nonstandard Work Schedule	*No Adoption*	*Fewer Than 25 Percent*	*25 to 49 Percent*	*50 to 100 Percent*	*Total*
Part-time	29.9	54.5	9.1	6.5	100.0
Staggered hours	37.7	20.8	12.9	28.6	100.0
Flexible hours	84.4	11.7	1.3	2.6	100.0
Shorter workweek	84.4	14.3	1.3	0	100.0

Source: 1979 statewide survey of Arizona employers conducted by the authors.

Analysis shows that in both sectors, the use of nonstandard work schedules is confined mainly to 25 percent or less of the employer's total work force. A notable exception concerns staggered hours which are used mostly among 50 to 100 percent of the employer's workforce, when instituted by either manufacturers or nonmanufacturers.

Work Schedule Advantages and Disadvantages

Each of the workweek schedules has strengths as well as weaknesses, and each has its proponents as well as opponents. Although much of the rhetoric — both for and against — consists of testimonials and case studies, these reports provided the basis on which this study was designed. The list of advantages and disadvantages presented to Arizona employers in the questionnaire was synthesized from a literature review of nonstandard work hours. Arizona managers' reactions to these advantages and evaluation of disadvantages reveals their perceptions about the applicability of nonstandard work schedules.

Since several advantages or disadvantages may be appropriate to each work schedule, respondents were permitted to check as many choices as needed to fully record their beliefs. Thus, column percentages do not equal 100 percent. Respondents were also free to record their opinions regardless of whether they used such a schedule. Survey results are presented as a percentage of respondents reporting.

Part-time Schedules. Part-time schedules are the most widely used nonstandard schedule in Arizona. Table 3 lists the perceived advantages for part-time schedules. The three most prevalent advantages noted by manufacturers were improvement in employee scheduling (38.5 percent), good public relations (32.3 percent), and changed schedules by competitors (30.2 percent). For nonmanufacturers, the three most frequently mentioned advantages for part-time schedules were improvement in employee scheduling (53.2 percent), changed schedules by competitors (41.6 percent), and good public relations (36.4 percent).

The negative aspects of part-time schedules are given in Table 4. Almost 46 percent (45.8 percent) of manufacturers view part-time schedules as causing additional costs to the organization. The second most frequently mentioned disadvantage (40.6 percent) was fear that if the part-time schedule failed, returning to former scheduling methods would be difficult. Presumably returning to past schedules would meet with employee resistance and would add to organizational costs. As their third most common disadvantage, manufacturers specified employee scheduling and communications problems (25.0 percent). Nonmanufacturers listed additional costs to the organization as the primary disadvantage of part-time employment (50.6 percent), followed by problems of returning to previous schedules (42.9 percent), and increases in absenteeism and turnover (35.1 percent).

Since part-time schedules are used by approximately 70 percent of Arizona's nonmanufacturers, it appears that the advantages of this scheduling technique outweigh its disadvantages to this sector. This conclusion does not apply to manufacturers. Comparatively, only 38.5 percent of Arizona manufacturers use part-time schedules in whole or part. This indicates that the perceived disadvantages of part-time systems are more important than the schedules' perceived advantages.

TABLE 3

PERCEIVED ADVANTAGES OF PART-TIME

Potentially Advantageous Factors	*Percentage of Respondents*[a] *Manufacturing*	*Non-manufacturing*
Provides better service	4.2	19.5
Aids employee-management cooperation	7.3	15.6
Helps keep up with competitors who have changed schedules	30.2	41.6
Reduces commuting and parking problems	6.3	16.9
Allows employees to engage in family and social activities more easily	6.3	22.1
Attracts quality applicants	18.8	28.6
Cuts costs of start-ups and employee breaks	11.5	16.9
Provides good public relations	32.3	36.4
Lowers absenteeism and turnover	2.1	6.5
Fulfills our social responsibility to employees	9.4	11.7
Improves employee scheduling	38.5	53.2
Aids motivation and loyalty	5.2	15.6
Uses equipment better	8.3	14.3

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

TABLE 4

PERCEIVED DISADVANTAGES OF PART-TIME

Potentially Disadvantageous Factors	*Percentage of Respondents*[a] *Manufacturing (Rank)*	*Non-manufacturing (Rank)*
Causes more costs to organization	45.8(1)	50.6(1)
Use of equipment would drop	10.4	16.9
Resistance from supervisors	24.0	27.3
Creates scheduling and communication problems	25.0(3)	26.0
Resistance from employees	14.6	11.7
Might violate wage laws	8.3	9.1
Rejection by customers or suppliers	9.4	11.7
Increased fatigue is likely	10.4	13.0
Returning to previous schedule would be difficult if change failed	40.6(2)	42.9(2)
Gives employees a chance to moonlight	11.5	10.4
Increases in absenteeism or turnover	24.0	35.1(3)
Falling productivity after novelty ended	7.3	3.9

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

Staggered Hours Schedules. Staggered hours schedules are another relatively popular work hour arrangement in Arizona. Both manufacturers and nonmanufacturers agreed — although in different order — on the three most important advantages of this schedule. Table 5 reveals the findings. In order of importance, manufacturers cited, as most beneficial, the opportunity to provide better service (45.8 percent), a reduction in commuting and parking problems (40.6 percent), and the ability to attract quality applicants for employment (38.5 percent). Nonmanufacturers reported benefits of staggered hours as a reduction in commuting and parking problems (64.9 percent), the ability to provide better service (51.9 percent), and an increased ability to attract quality applicants (45.5 percent).

While advantages do accrue to employers from staggered hours, potential problems and limitations do exist. Over 53 percent of the manufacturers believed that supervisors would resist this schedule, as shown in Table 6. This is a common disadvantage noted by employers nationally. Supervisors often believe that staggered hours mean longer hours for them or loss of control over employees. Other concerns included less equipment usage (31.3 percent) and difficulty of returning to previous schedules if the staggered hour arrangement failed (25.0 percent).

Nonmanufacturers cited supervisory resistance (58.4 percent), poor equipment utilization (41.6 percent), and the increased costs of staggered hours (41.6 percent) as the most common disadvantages.

Since the majority of nonmanufacturers use staggered hours (62.3 percent), it appears that the perceived advantages outweigh the disadvantages for this group. The disadvantages of staggered hours to Arizona manufacturers are slightly more important than the advantages. The adoption rate for staggered hours among manufacturers is 44.8 percent.

TABLE 5

PERCEIVED ADVANTAGES OF STAGGERED HOURS

Potentially Advantageous Factors	*Percentage of Respondents*[a]	
	Manufacturers	*Nonmanufacturers*
Provides better service	45.8	51.9
Aids employee-management cooperation	27.1	42.9
Helps keep up with competitors who have changed schedules	4.2	14.3
Reduces commuting and parking problems	40.6	64.9
Allows employees to engage in family and social activities more easily	19.8	27.3
Attracts quality applicants	38.5	45.5
Cuts costs of start-ups and employee breaks	14.6	35.1
Provides good public relations	12.5	29.9
Lowers absenteeism and turnover	11.5	14.3
Fulfills our social responsibility to employees	28.1	37.7
Improves employee scheduling	3.1	11.7
Aids motivation and loyalty	16.7	18.2
Uses equipment better	28.1	24.7

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

TABLE 6

PERCEIVED DISADVANTAGES OF STAGGERED HOURS

Potentially Disadvantageous Factors	*Percentage of Respondents*[a]	
	Manufacturers	*Nonmanufacturers*
Causes more costs to organization	24.0	41.6
Use of equipment would drop	31.1	41.6
Resistance from supervisors	53.1	58.4
Creates scheduling and communication problems	16.7	15.6
Resistance from employees	12.5	5.2
Might violate wage laws	13.5	15.6
Rejection by customers or suppliers	6.3	6.5
Increased fatigue is likely	14.6	14.3
Returning to previous schedule would be difficult if change failed	25.0	15.6
Gives employees a chance to moonlight	5.2	1.3
Increases in absenteeism or turnover	9.4	9.1
Falling productivity after novelty ended	2.1	2.6

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

Shorter Workweek. Compared to part-time and staggered hour schedules, shorter workweek programs are used sparingly by both manufacturers and nonmanufacturers. Arizona managers perceive that the disadvantages of this program exceed its benefits. As Table 7 shows, where advantages are noted, almost 40 percent (39.6 percent) of manufacturers believed that shorter workweeks aid employee-management cooperation. Other prominent advantages listed were less time lost for start-up and employee breaks (28.1 percent) and improved ability to attract quality applicants (22.9 percent). The principal advantage of shorter workweeks as noted by nonmanufacturers, was improvement in employee-management cooperation (70.1 percent). This advantage was followed by less time lost for start-up and employee breaks (44.2 percent) and fulfillment of the firm's social responsibility to employees (37.7 percent).

The advantages of the shorter workweek are largely overshadowed by the disadvantages shown in Table 8. Over 42 percent (42.7 percent) of manufacturers thought use of the schedule would increase employee absenteeism or turnover, or the shorter workweek would be resisted by employees (37.5 percent). A third objection is the added cost to the organization (32.3 percent). The disadvantages mentioned most frequently by nonmanufacturers were increases in absenteeism or turnover (50.6 percent), added costs to the organization, and resistance from employees (29.9 percent).

TABLE 7

PERCEIVED ADVANTAGES OF SHORTER WORKWEEK

Potentially Advantageous Factors	Percentage of Respondents[a] Manufacturers	Percentage of Respondents[a] Nonmanufacturers
Provides better service	3.1	11.7
Aids employee-management cooperation	39.6	70.1
Helps keep up with competitors who have changed schedules	9.4	22.1
Reduces commuting and parking problems	11.5	29.9
Allows employees to engage in family and social activities more easily	7.3	20.8
Attracts quality applicants	22.9	32.5
Cuts costs of start-ups and employee breaks	28.1	44.2
Provides good public relations	3.1	19.5
Lowers absenteeism and turnover	7.3	18.2
Fulfills our social responsibility to employees	18.8	37.7
Improves employee scheduling	14.6	23.4
Aids motivation and loyalty	5.2	14.3
Uses equipment better	15.6	22.1

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

TABLE 8

PERCEIVED DISADVANTAGES OF SHORTER WORKWEEK

Potentially Disadvantageous Factors	Percentage of Respondents[a] Manufacturers	Percentage of Respondents[a] Nonmanufacturers
Causes more costs to organization	32.3	40.3
Use of equipment would drop	13.5	6.5
Resistance from supervisors	26.0	20.8
Creates scheduling and communication problems	19.8	9.1
Resistance from employees	37.5	29.9
Might violate wage laws	4.2	2.6
Rejection by customers or suppliers	26.0	10.4
Increased fatigue is likely	20.8	10.4
Returning to previous schedule would be difficult if change failed	14.6	22.1
Gives employees a chance to moonlight	21.9	27.3
Increases in absenteeism or turnover	42.7	50.6
Falling productivity after novelty ended	19.8	9.1

[a] Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

Flexible-hour Schedules. Of the four nonstandard work schedules, flextime arrangements have the lowest adoption rate by Arizona employers. It would appear that the perceived disadvantages of flextime outweigh its advantages in the eyes of the managers.

As Table 9 indicates, manufacturers selected the following three advantages of flextime as most important: reduction in absenteeism and turnover (33.3 percent), fostering of employee participation in family and social activities (26.0 percent), and less time lost for start-ups and break periods (25.0 percent). Nonmanufacturers thought a decline in absenteeism and turnover (39.0 percent), improved family and social benefits to employees (36.4 percent), and better equipment utilization (31.2 percent) were key advantages.

As viewed by manufacturers the negative results of a flextime program would evolve principally from employee resistance (49.0 percent), increased absenteeism or turnover (39.6 percent), and higher costs to the organization (38.5 percent), as Table 10 reveals. Nonmanufacturers also viewed resistance to flextime (49.4 percent) as a disadvantage. Added costs were perceived as disadvantages by 42.9 percent of the nonmanufacturers while another 42.9 percent felt that returning to former schedules would be difficult if flextime failed.

Employee Acceptance

An important concern of managers, when implementing organization change programs, is employee acceptance. If present work schedules are to be successfully changed, employees must be motivated to accept the change and to see its advantages for meeting both organizational and individual employee needs. Managers who neglect employee reactions may be forced to discontinue an otherwise beneficial program. This applies to new work hour schedules as well as other organizational programs. Therefore, many organizations are very careful to assess the attitudes of participants prior to implementing new schemes.

TABLE 9

PERCEIVED ADVANTAGES OF FLEXTIME

Potentially Advantageous Factors	*Percentage of Respondents*[a] *Manufacturers*	 *Non-manufacturers*
Provides better service	5.2	14.3
Aids employee-management cooperation	5.2	16.9
Helps keep up with competitors who have changed schedules	13.5	22.1
Reduces commuting and parking problems	17.7	26.0
Allows employees to engage in family and social activities more easily	26.0	36.4
Attracts quality applicants	7.3	13.0
Cuts costs of start-ups and employee breaks	25.0	26.0
Provides good public relations	9.4	15.6
Lowers absenteeism and turnover	33.3	39.0
Fulfills our social responsibility to employees	5.2	19.5
Improves employee scheduling	7.3	18.2
Aids motivation and loyalty	11.5	26.0
Uses equipment better	17.7	31.2

[a]Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

To assess employee receptivity of the four nonstandard work schedules, Arizona managers were asked to indicate what percentage of their employees would accept these novel work programs. The results, presented in Table 11, show that manufacturers perceive a rather high nonacceptance for part-time, staggered hours, and flextime by employees. For each of these schedules, manufacturing managers believed that more than 50 percent of their employees would reject working under these arrangements. The shorter workweek was the only schedule viewed by these managers to be readily acceptable to employees. Sixty-two percent (62.5 percent) thought that their employees would be willing to work under this system.

Survey results show a somewhat different pattern for nonmanufacturing employees. While part-time and staggered hours would receive limited acceptance by employees, managers voiced a generally positive employee receptivity for flextime and the shorter workweek. Sixty-one percent of nonmanufacturing managers believed that their employees would accept a flextime work schedule, and almost 69 percent of them indicated employee acceptance of the shorter workweek.

TABLE 10

PERCEIVED DISADVANTAGES OF FLEXTIME

Potentially Disadvantageous Factors	*Percentage of Respondents*[a] *Manufacturers*	 *Non-manufacturers*
Causes more costs to organization	38.5	42.9
Use of equipment would drop	9.4	9.1
Resistance from supervisors	16.7	19.5
Creates scheduling and communication problems	9.4	9.1
Resistance from employees	49.0	49.4
Might violate wage laws	5.2	3.9
Rejection by customers or suppliers	8.3	3.9
Increased fatigue is likely	4.2	0.0
Returning to previous schedule would be difficult if change failed	35.4	42.9
Gives employees a chance to moonlight	11.5	20.8
Increases in absenteeism or turnover	39.6	41.6
Falling productivity after novelty ended	7.3	7.8

[a]Since multiple responses were permitted, column totals will not equal 100.

Source: 1979 statewide survey of Arizona employers conducted by the authors.

EMPLOYER EXPANSION OF NONSTANDARD WORK SCHEDULES

While employee acceptance of work hour changes is critical to program adoption, the decision to implement a nonstandard work schedule probably rests upon varied organizational needs. Cost concerns, receptivity by supervisors, customer service, and others all play important roles in adoption considerations. As a final survey question, Arizona managers were asked to estimate the expansion of each nonstandard work schedule within their organization. The results presented in Table 12 show that manufacturers (26.3 percent) and nonmanufacturers (47.3 percent) indicate a likelihood of expanding part-time employment. These results imply a relatively positive acceptance of this scheduling technique. A similar conclusion is reached for staggered hours since manufacturers (26.0 percent) and nonmanufacturers (36.1 percent) indicated future growth of this scheme. The expansion rate for flexible hours and the shorter workweek is

TABLE 11

PERCEIVED EMPLOYEE ACCEPTANCE OF DIFFERENT NONSTANDARD WORKWEEKS

Manufacturers (N = 96)

Type of Nonstandard Schedule	*Perceived Nonacceptance*	*Perceived Acceptance by 1 to 24 Percent of Employees*	*Perceived Acceptance by 25 to 49 Percent of Employees*	*Perceived Acceptance by 50 to 74 Percent of Employees*	*Perceived Acceptance by 75 to 100 Percent of Employees*	*Total*
Part-time	69.8	29.2	0.0	1.0	0.0	100.0
Staggered hours	54.2	17.7	5.2	13.5	9.4	100.0
Flextime	52.1	19.8	7.3	10.4	10.4	100.0
Shorter workweek	37.5	25.0	8.3	11.5	17.7	100.0

Nonmanufacturers (N = 77)

Type of Nonstandard Schedule	*Perceived Nonacceptance*	*Perceived Acceptance by 1 to 24 Percent of Employees*	*Perceived Acceptance by 25 to 49 Percent of Employees*	*Perceived Acceptance by 50 to 74 Percent of Employees*	*Perceived Acceptance by 75 to 100 Percent of Employees*	*Total*
Part-time	61.0	26.0	7.8	5.2	0.0	100.0
Staggered hours	46.8	25.9	10.4	10.4	6.5	100.0
Flextime	39.0	29.9	11.7	10.3	9.1	100.0
Shorter workweek	31.2	14.3	11.7	19.5	23.3	100.0

Source: 1979 statewide survey of Arizona employers conducted by the authors

TABLE 12

MANAGERS' ATTITUDES TOWARD EXPANSION OF A NONSTANDARD WORKWEEK SCHEDULE

(Percentage Probability of Adoption)

Manufacturers (N = 96)

Type of Nonstandard Schedule	*Very[a] Likely*	*Likely*	*Uncertain*	*Unlikely*	*Very Unlikely*	*Total*
Part-time	9.2	17.1	23.7	23.7	26.3	100.0
Staggered hours	9.	16.9	16.9	27.3	29.8	100.0
Flexible hours	5.3	6.6	11.8	31.6	44.7	100.0
Shorter workweek	2.6	3.9	9.1	31.2	53.2	100.0

Nonmanufacturers (N = 77)

Type of Nonstandard Schedule	*Very[a] Likely*	*Likely*	*Uncertain*	*Unlikely*	*Very Unlikely*	*Total*
Part-time	19.4	27.9	11.1	20.8	20.8	100.0
Staggered hours	15.3	20.8	26.4	23.6	13.9	100.0
Flexible hours	6.9	9.6	20.5	21.9	41.1	100.0
Shorter workweek	4.1	8.2	21.9	19.2	46.6	100.0

[a] Percentages were based on the following member of respondents: Manufacturers part-time, 76; staggered hours, 77; flexible hours 76; shorter workweek, 77; nonmanufacturers part-time, 72; staggered hours, 72; flexible hours, 73; shorter workweek, 73

Source: 1979 statewide survey of Arizona employers conducted by the authors estimated to be much lower. Only 11.9 percent of manufacturers and 16.5 percent of nonmanufacturers believed that flextime would expand within their organizations. Manufacturers believed that the shorter workweek would grow by only 6.5 percent; only 12.3 percent of the nonmanufacturers believed the shorter workweek would grow in the future.

SUMMARY AND CONCLUSIONS

From the varied attitudes expressed by Arizona managers, it is clear that no one work schedule is accepted universally. Although staggered and part-time hours are the most common nonstandard schedules, less than half of the firms use them. Flexible hours and shorter workweeks are even less common, and their use is less likely to expand in the future.

The future of nonstandard work schedules depends on the perceived benefits and problems associated with these innovations. One interesting finding of this study is the high level of agreement between managers in the manufacturing and nonmanufacturing sectors. Both groups perceive the key advantages and disadvantages of each work schedule similarly, although the top three advantages and disadvantages for each schedule vary somewhat in their rankings. This finding implies that nonstandard work schedules present employers with similar benefits and problems, regardless of which sector the firm is in.

However, even in the face of limited expansion plans and strong agreement on benefits and problems, both groups of managers report that acceptance of nonstandard schedules among their employees is high. Most employees would reject part-time employment, presumably because of the lower wages and salaries that would result. But nearly half or more of their employees would accept staggered hours, flextime, and shorter workweeks. A clear majority of their employees would accept shorter workweeks and nearly half or more would accept flextime. Yet, shorter workweeks and flextime are the two schedules managers report as least likely to expand.

This contradiction holds two potential implications. First, customer demands, technology, and other business considerations apparently are too compelling to accommodate employee desires for these schedules. Second, it seems reasonable to argue that employers who are able to offer these innovative schedules may gain recruiting and retention benefits.

It also is interesting to note that employers see the expansion of part-time and staggered hours as more likely than increased use of flextime or shorter hours. Yet, these same respondents report that part-time and staggered hours have the lowest acceptance by employees. Obviously, expansion of these schedules should be done only with careful forethought to employee reactions.

The low birth rates of the 1960s and 1970s indicate that the national, and presumably Arizona, labor markets will grow more slowly during the next twenty-five years. This slowed growth will place severe pressures on employers to obtain and retain an optimal work-force. These pressures will be greatest among skilled and white collar workers where the demand for labor is expected to grow.

The need for qualified human resources may well accelerate the growth of nonstandard work schedules. Although continued inmigration and migration into Arizona may east staffing pressures on the state's employers, more and more firms are likely to find work schedule changes to be an effective and productive method of assuring the necessary supplies of personnel during the next twenty-five years.

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[1] "Short Workweek," *Washington Vantage Point*, November 1979, pp. 2-3.

[2] John W. Newstrom and Jon L. Pierce, "Alternative Work Schedules: The State of the Art," *The Personnel Administrator*, October 1979, pp. 19f.; Maureen McCarthy, "Trends in the Development of Alternative Work Patterns," *The Personnel Administrator*, October 1979, pp. 25f.; "A Full-time Job — Weekends Only," *Business Week*, October 15, 1979, pp. 150-152; Barron H. Harvey and Fred Luthans, "Flexitime: An Empirical Analysis of Its Real Meaning and Impact," *MSU Business Topics*, Summer 1979, pp. 31f.

[3] The nonmanufacturing category encompassed all economic sectors except manufacturers.

The Arizona Business Scene

College of Business Administration: Twenty-Five Years of Service

Among the most dramatic developments in higher education in the United States during the last quarter century has been the growth, both numerically and academically, of the College of Business Administration at Arizona State University. From its beginning in 1955, when it was first established as a separate entity with fifteen full-time faculty members and 900 students, the College has grown to its present level of nearly 10,000 business majors and a faculty of more than 200.

The origins of course offerings in the field of business, or commerce as it was called then, may be traced to 1888 — three years after the institution first came into being as Arizona Territorial Normal School. Compared to today's extensive programs covering all aspects of business activity, the offerings were meager indeed — Commercial Arithmetic and Bookkeeping.

By the time of World War I, Tempe Normal School had greatly expanded its business program. Included among the courses available were Economics, Business Organization, Corporate Finance, Business Statistics and Commercial Law.

Accreditation by the North Central Association of Colleges and Secondary Schools was achieved in 1931. By then the institution was known as Arizona State Teachers College at Tempe, a designation that continued through the period of World War II. In 1945, the name "Arizona State College at Tempe" was adopted.

For eight years, commencing in 1948, the business department made solid progress under the leadership of E. J. Hilkert, an attorney and accountant, who had joined the faculty in 1933. During his tenure limited graduate programs were introduced and a new building was constructed to house the business and agriculture departments.

Thus the stage was set for the critical decision, made by the Board of Regents in late 1954, to authorize four new colleges on the Tempe campus effective July 1, 1955, one of which was the College of Business Administration. It was not until 1958 that the name change campaign resulted in the creation of Arizona State University. By then the College of Business Administration was already well established on the course it was to follow for many years — exceptional numerical growth, establishment of a national reputation for quality and, above all, a record of service to the people of Arizona.

The individual who has been the catalyst in the process of professional growth and development in the College of Business Administration has been Dr. Glenn D. Overman. Assuming the position of Dean in 1956, Dr. Overman has provided the leadership necessary to attract outstanding faculty members and to build programs that respond to the needs of the community and the business world at large.

Under Dean Overman's direction, the College has focused on three forms of activity that distinguish a quality professional school — teaching, research and service. There emerged in Tempe an institution that emphasizes the marriage of practice and theory in the field of business.

In 1962 the College of Business Administration was awarded full undergraduate accreditation by the American Assembly of Collegiate Schools of Business (AACSB) — the ultimate accreditation for such programs. This event was followed in 1964 by accreditation of the College's master's degree programs, during the first year that level of accreditation was granted by AACSB.

Even before graduate accreditation was conceived, the College was offering three master's degrees — the Master of Business Administration, the Master of Science in Accounting (now the Master of Accountancy), and the Master of Science in Economics. In 1965, the capstone degree in the field — the Doctor of Business Administration — was activated. During the ensuing fifteen years 136 DBAs have been awarded to outstanding students, most of whom are now faculty members at universities throughout the nation. Additional graduate programs initiated since then are the Doctor of Philosophy in Economics and the Master of Health Services Administration.[2]

The overriding goal of service is exemplified by the varied activities of the Business Administration faculty. These individuals have been drawn to this institution because of the opportunity to pass on the accumulated knowledge of their respective disciplines, to stimulate analytical processes, and to add to the store of knowledge through both theoretical and applied research. Providing the environment in which such productive activities can take place is a primary concern of the College administration.

In the Business Administration building, instruction takes place in case-style rooms that encourage discussion and interchange with the scholars who comprise the faculty. An unusual feature of these classrooms is the use of art that depicts the culture and environment of the area. Exceptional devotion to teaching is recognized at the College's annual Honors Convocation when awards are made to the outstanding undergraduate instructor, the outstanding graduate teacher and the outstanding graduate student teaching assistant.

As part of their responsibility as members of a university community and as participants in a professional discipline, faculty members work to expand the boundaries of knowledge through research. Some of these activities are highly individual and result in the publication of articles, monographs, and textbooks. Much of the College's research originates with or is coordinated by the Bureau of Business and Economic Research. In addition to publishing ten issues of *Arizona Business* annually, the Bureau engages in funded reaearch projects of importance to the business community, including cost-of-living studies, the Arizona Econometric Model, and reports of tourism activity. Numerous students are trained in research methodology through participation in these projects.

Yet another facet of service may be found in the Center for Executive Development, which annually is host to more than 8,000 continuing education seminars and conferences. Virtually all areas of business expertise are represented in the center's programs.

Specialized community needs are met through the activities of the Productivity Institute and the Small Business Institute. In the latter, advanced students and their faculty advisors act as consultants to small businesses, thereby providing another link between theory and practice.

As its Silver Anniversary is being observed, the College of Business Administration reflects on the accomplishments during its first twenty-five years with a mixture of pride and humility: pride because in so short a time the College has risen from anonymity to national prominence; humility because so much remains to be done. The faculty and administration look forward to the next quarter century with confidence that comparable advances can be made in the years to come.[3]

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[1] A detailed report of the College's progress during the period 1955-1975 may be found in the article, ''The First Twenty Years: A College and Faculty Profile,'' *Arizona Business*, January, 1976.

[2] Some of the historical information used in this article was obtained from a report in the University Archives entitled, ''The History of Business Instruction at Arizona State University,'' by Edwin S. Burt, December 5, 1974.

[3] The material used as a basis for this report was compiled and researched by the members of the Silver Anniversary Committee, College of Business Administration, Arizona State University.

A Survey of Arizona Business Conditions

HAROLD FEARON

The economy took a definite turn for the better in January, according to results from the monthly business survey of the Purchasing Management Association of Arizona. While the slowing trend evident at the close of the year seems to have been reversed, the economy is still not out of danger, for the present growth rate is only moderate compared to the early months of 1979. Yet, all indicators were on the plus side, and all the increase rates were higher than in December. Unfortunately, the inflationary trend seems to be totally unchecked, and the net increase on the price indicator was higher in January than in any month over the past five and a half years.

The Purchasing Management Business Survey now is in its eighteenth year of monthly reporting on the condition of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state. They report whether performance on six key indicators of economic performance increased, decreased, or remained the same compared to the previous month. Since these purchasing managers deal with market forces on a daily basis, they can provide a timely and accurate picture of current businese trends.

Prices paid for major purchased items increased at a very high rate. Higher prices were reported by 86 percent of the purchasing managers; 14 percent said prices were unchanged; no one said their firm paid lower prices in January than in December. The inflationary trend seems to be immune to all the remedies applied so far. A major factor in this upward trend is the steadily escalating costs of energy, and this problem is not likely to diminish in the near future. Arizona firms should include an assumption of continuing price hikes in their planning for the new year.

Delivery time on shipments from vendors continued to stretch out at a rate slightly above that of December, although it was still well under the increases that occurred during all the other months of 1978 and 1979. Longer delivery times were reported by 40 percent of the firms, which was five times the 8 percent that received faster deliveries from their vendors. This shows that the vendors' pace of business is a bit less hectic than during the first three quarters of 1979, although difficulties are still being experienced in getting prompt shipments of needed purchased items.

Inventories of purchased materials still are under control. While the January addition to stocks was at a stepped-up rate compared to November and December, the net increase rate in each of the months since last June has been moderate and well in line with the new order and production increases. In January, 35 percent added to inventory, which was about twice the 19 percent that cut stocks. There does not appear to be any danger of excess inventory propelling the economy into a sudden downswing.

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New orders received from customers registered a good increase — the highest in the past four months; 33 percent said they booked more new business in January than in December compared to 23 percent who saw their order books shrink. This increase follows on the heels of a slight decrease in the new order rate in December (the first in three years) and shows that the downtrend apparently has been reversed. However, the January increase was small and less than those of the first nine months of 1979, showing that a definite damper has been put on Arizona's current economic growth rate. Yet, the economy is again moving in an upward direction.

Production increased for the forty-ninth consecutive month, although both the December and January increases were quite small and the lowest since the end of 1977. Higher production was reported by 33 percent; 27 percent cut output. This relatively slow growth in production was to be expected, for production activity follows closely the new order rate. Several more months of slow growth are likely in production before a pronounced upturn occurs.

Employment increased again in January, for the forty-ninth consecutive month; 26 percent added employees, while 14 percent pared payrolls. The January increase was somewhat greater than in the previous month, but it still was a smaller hike than in any other month in over a year (since February of 1978). Thus, the Arizona employment picture continues positive, although the growth rate is much lower than was enjoyed throughout almost all of the months of the previous year.

This may turn out to be the downturn that never was, for the pause in growth evident in the last quarter of 1979 seems to have been of short duration and magnitude. While the economy in January certainly was not operating under a full head of steam, it did move in an upward direction, even though the advances were small. A continuation of this slow growth is anticipated over the next several months, but no major economic reversals are likely.

The results of the January purchasing survey are shown in Table 1.

TABLE 1

JANUARY SURVEY

	Percent of Purchasing Managers Indicating Each Response (January compared to December)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	86	14	0
Delivery time from vendors	40	52	8
Purchased materials inventory level	35	46	19
New orders received	33	44	23
Production	33	40	27
Employment	26	60	14

Source: Survey of the Purchasing Management Association of Arizona.

ARIZONA SALES OF ELECTRICAL POWER

By Months

(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1979	*1978*	*Same Month Previous Year*	*Previous Month*
November*	2,047.8	1,849.3	10.70	-9.60
December	2,177.4	2,125.4	2.45	6.33

Source: Based on reports from major suppliers.

*The November electrical power sales for 1978 and 1979 were presented incorrectly in the January issue of *Arizona Business*. The corrected figures are presented here.

Arizona New Housing Starts: Monthly Report

DECEMBER, 1979

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	4	—	—	—	4
Eagar	3	—	—	—	3
St. Johns	—	—	—	—	—
Springerville	—	—	—	—	—
Uninc. Apache Co.	1	—	—	—	1
COCHISE COUNTY	33	—	—	—	33
Benson	4	—	—	—	4
Bisbee**	—	—	—	—	—
Douglas	1	—	—	—	1
Huachuca City	1	—	—	—	1
Sierra Vista	9	—	—	—	9
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	17	—	—	—	17
Willcox	—	—	—	—	—
COCONINO COUNTY	30	—	—	—	30
Flagstaff	12	—	—	—	12
Fredonia	1	—	—	—	1
Page	3	—	—	—	3
Uninc. Coconino Co.	14	—	—	—	14
Williams	—	—	—	—	—
GILA COUNTY	23	—	—	—	23
Globe	3	—	—	—	3
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	9	—	—	—	9
Uninc. Gila Co.	11	—	—	—	11
GRAHAM COUNTY	10	1	—	—	12
Pima	1	—	—	—	1
Safford	1	—	—	—	1
Thatcher	—	1	—	—	2
Uninc. Graham Co.	8	—	—	—	8
GREENLEE COUNTY	—	—	—	—	—
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	—	—	—	—	—
MARICOPA COUNTY	987	6	7	14	1,932
Avondale	—	—	—	—	—
Buckeye	—	—	—	—	—
Chandler	50	—	1	—	53
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	4	—	—	—	4
Glendale	34	—	—	—	34
Goodyear	—	—	—	—	—
Guadalupe	1	—	—	—	1
Mesa	126	3	3	1	160
Paradise Valley	6	—	—	—	6
Peoria	2	—	—	—	2
Phoenix	214	1	—	9	1,081
Scottsdale	101	—	—	—	101
Surprise	—	—	—	—	—
Tempe	45	—	—	—	45
Tolleson	1	—	—	—	1
Uninc. Maricopa Co.	403	—	2	3	429
Wickenburg	—	—	1	—	3
Youngtown	—	2	—	1	12
MOHAVE COUNTY	142	1	—	1	152
Kingman City	5	—	—	—	5
Kingman Area	18	—	—	—	18
Lake Havasu City	52	1	—	—	54
Lake Havasu Area	10	—	—	—	10
Mohave Valley North	40	—	—	1	48
Mohave Valley South	8	—	—	—	8
Dolan Springs	1	—	—	—	1
Sacramento Valley	7	—	—	—	7
Mohave Co. General	1	—	—	—	1
NAVAJO COUNTY	47	—	—	—	47
Holbrook	1	—	—	—	1
Show Low	6	—	—	—	6
Snowflake	—	—	—	—	—
Taylor	1	—	—	—	1
Uninc. Navajo Co.	35	—	—	—	35
Winslow	4	—	—	—	4
PIMA COUNTY	660	5	3	7	839
Marana	—	—	—	—	—
Oro Valley	—	—	—	—	—
South Tucson	—	—	—	—	—
Tucson	134	4	3	6	275
Uninc. Pima Co.	526	1	—	1	564
PINAL COUNTY	41	1	—	—	43
Casa Grande**	4	—	—	—	4
Coolidge	6	—	—	—	6
Eloy	—	—	—	—	—
Florence	1	—	—	—	1
Kearny	1	—	—	—	1
Mammoth	—	—	—	—	—
Superior	—	—	—	—	—
Uninc. Pinal Co.	29	1	—	—	31
SANTA CRUZ COUNTY	5	—	—	—	5
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—
Uninc. Santa Cruz Co.	5	—	—	—	5
YAVAPAI COUNTY	97	2	3	1	129
Chino Valley	3	—	—	—	3
Clarkdale	5	—	1	—	9
Cottonwood	8	—	—	—	8
Jerome	—	—	—	—	—
Prescott	12	2	2	1	40
Uninc. Yavapai Co.	69	—	—	—	69
YUMA COUNTY	114	2	5	—	138
Parker**	3	—	—	—	3
Somerton	—	—	—	—	—
Uninc. Yuma Co.	76	—	—	—	76
Wellton	—	—	—	—	—
Yuma	35	2	5	—	59
TOTAL, Maricopa Co., December 1979	987	6	7	14	1,932
TOTAL, Maricopa Co., December 1978	2,535	10	22	67	3,918
PERCENT CHANGE	- 61	- 40	- 68	- 79	- 51
TOTAL, Arizona, December 1979	2,193	18	18	23	3,387
TOTAL, Arizona, December 1978	3,936	19	27	72	5,759
PERCENT CHANGE	- 44	- 5	- 33	- 68	- 41

N/R: No report; data for this month will be combined with data reported for the following month.

*Includes mobile homes.

**Includes November and December data.

DECEMBER, 1979

Arizona Building Permits: Monthly Report

CENSUS DIVISION	RESIDENTIAL* Number of Permits	RESIDENTIAL* Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permits	TOTAL Dollar Value
APACHE COUNTY	5	169,000	1	900	1	89,000	—	—	7	258,900
Eagar	4	114,000	1	900	—	—	—	—	5	114,900
St. Johns	—	—	—	—	—	—	—	—	—	—
Springerville	—	—	—	—	—	—	—	—	—	—
Unincorporated Apache County	1	55,000	—	—	1	89,000	—	—	2	144,000
COCHISE COUNTY	101	1,025,734	4	126,000	—	—	72	297,010	177	1,448,744
Benson	6	65,500	—	—	—	—	2	3,348	8	68,848
Bisbee**	43	58,374	—	—	—	—	13	70,441	56	128,815
Douglas	9	155,770		—	—	—	7	13,582	16	169,352
Huachuca City	3	26,562	—	—	—	—	—	—	3	26,562
Sierra Vista	17	301,799	—	—	—	—	30	58,682	47	360,481
Tombstone	3	3,090	—	—	—	—	—	—	3	3,090
Unincorporated Cochise County	20	414,639	2	75,000	—	—	17	138,977	39	628,616
Willcox	—	—	2	51,000	—	—	3	11,980	5	62,980
COCONINO COUNTY	49	1,310,935	6	249,998	1	89,875	20	46,339	76	1,697,147
Flagstaff	18	745,228	5	101,950	—	—	3	23,300	26	870,478
Fredonia	1	N/C	—	—	—	—	1	50	2	50
Page	6	N/C	—	—	—	—	—	—	6	N/C
Unincorporated Coconino County	23	561,207	1	148,048	1	89,875	11	21,319	36	820,449
Williams	1	4,500	—	—	—	—	5	1,670	6	6,170
GILA COUNTY	37	432,085	1	4,564	—	—	9	9,950	47	446,599
Globe	7	91,700	—	—	—	—	—	—	7	91,700
Hayden	—	—	—	—	—	—	—	—	—	—
Miami	4	5,785	—	—	—	—	1	500	5	6,285
Payson	11	106,346		4,564	—	—	5	8,400	17	119,310
Unincorporated Gila County	15	228,254	—	—	—	—	3	1,050	18	229,304
GRAHAM COUNTY	26	393,850	1	15,000	—	—	—	—	27	408,850
Pima	1	5,000	—	—	—	—	—	—	1	5,000
Safford	8	50,845	1	15,000	—	—	—	—	9	65,845
Thatcher	3	99,000	—	—	—	—	—	—	3	99,000
Unincorporated Graham County	14	239,005	—	—	—	—	—	—	14	239,005
GREENLEE COUNTY	—	—	—	—	—	—	—	—	—	—
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	—	—	—	—	—	—	—	—	—	—
Unincorporated Greenlee County	—	—	—	—	—	—	—	—	—	—
MARICOPA COUNTY	1,673	33,248,577	115	60,955,163	26	13,362,979	1,390	10,343,631	3,204	117,910,350
Avondale	1	460	—	—	—	—	5	16,761	6	17,221
Buckeye	6	43,300	—	—	—	—	4	31,000	10	74,300
Chandler	69	957,256	1	41,200	—	—	73	342,684	143	1,341,140
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	—	—	—	—	—	—	1	500	1	500
Gilbert	9	88,600	—	—	1	12,000	21	105,587	31	206,187
Glendale	66	1,175,740	18	2,135,300	—	—	94	1,861,703	178	5,172,743
Goodyear	—	—	—	—	2	47,500	7	17,181	9	64,681
Guadalupe	2	18,200	—	—	—	—	—	—	2	18,200
Mesa	240	2,362,638	9	787,000	2	226,253	179	1,224,383	430	4,600,274
Paradise Valley	10	684,730	—	—	—	—	26	152,062	36	836,792
Peoria	11	93,442	1	659	—	—	11	93,088	23	187,189
Phoenix	461	11,699,788	39	52,927947	7	9,008,426	531	4,427,071	1,038	78,063,232
Scottsdale	138	4,579,149	4	301,287	—	—	244	1,092,661	386	5,973,097
Surprise	2	2,550	—	—	—	—	5	8,530	7	11,080
Tempe	73	1,433,000	17	2,828,400	14	4,068,800	34	315,650	138	8,645,850
Tolleson	3	28,900	—	—	—	—	4	450	7	29,350
Unincorporated Maricopa County	565	9,988,294	24	1,731,670	—	—	147	638,520	736	12,358,484
Wickenburg	1	650	1	46,000	—	—	1	800	3	47,450
Youngtown	16	91,880	1	155,700	—	—	3	15,000	20	262,580

Arizona Building Permits: Monthly Report (Continued)

DECEMBER, 1979	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MOHAVE COUNTY	280	3,653,654	12	2,185,457	—	—	64	138,377	356	5,977,488
Kingman City	10	107,436	4	1,798,959	—	—	5	2,600	19	1,908,995
Kingman Area	35	294,992	1	13,824	—	—	10	7,854	46	316,670
Lake Havasu City	60	1,820,631	3	49,426	—	—	17	112,370	80	1,982,427
Lake Havasu Area	21	191,524	—	—	—	—	2	560	23	192,084
Mohave Valley North	108	949,649	2	255,280	—	—	14	5,763	124	1,210,692
Mohave Valley South	29	154,828	1	51,840	—	—	7	2,540	37	209,208
Dolan Springs	4	16,568	1	16,128	—	—	3	1,930	8	34,626
Sacramento Valley	11	88,314	—	—	—	—	5	3,960	16	92,274
Mohave County General	2	29,712	—	—	—	—	1	800	3	30,512
NAVAJO COUNTY	64	458,635	—	—	—	—	13	16,333	77	474,968
Holbrook	2	40,000	—	—	—	—	—	—	2	40,000
Show Low	6	92,060	—	—	—	—	6	2,565	12	94,625
Snowflake	—	—	—	—	—	—	—	—	—	—
Taylor	1	39,000	—	—	—	—	—	—	1	39,000
Unincorporated Navajo County	48	171,075	—	—	—	—	5	12,268	53	183,343
Winslow	7	116,500	—	—	—	—	2	1,500	9	118,000
PIMA COUNTY	1,152	19,026,081	44	12,862,700	—		348	5,843,788	1,544	37,732,569
Marana	—	—	—	—	—	—	1	N/C	1	N/C
Oro Valley	5	27,799	—	—	—	—	1	320	6	28,119
South Tucson	5	5,675	4	372,500	—	—	1	N/C	10	378,175
Tucson	246	4,760,540	19	6,533,850	—	—	218	4,751,398	483	16,045,788
Unincorporated Pima County	896	14,232,067	21	5,956,350	—	—	127	1,092,070	1,044	21,280,487
PINAL COUNTY	103	821,949	5	266,500	1	13,088	24	51,430	133	1,152,967
Casa Grande**	26	113,575	4	241,500	—	—	10	31,200	40	386,275
Coolidge	22	86,614	—	—	—	—	3	N/C	25	86,614
Eloy	1	900	—	—	1	13,088	1	6,200	3	20,188
Florence	5	5,750	—	—	—	—	1	180	6	5,930
Kearny	5	49,500	—	—	—	—	—	—	5	49,500
Mammoth	3	N/C	—	—	—	—	—	—	3	N/C
Superior	—	—	—	—	—	—	—	—	—	—
Unincorporated Pinal County	41	565,610	1	25,000	—	—	9	13,850	51	604,460
SANTA CRUZ COUNTY	6	415,900	—	—	—	—	—	—	6	415,900
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—	—	—	—	—	—
Unincorporated Santa Cruz County	6	415,900	—	—	—	—	—	—	6	415,900
YAVAPAI COUNTY	154	2,879,267	9	863,436	—	—	42	99,473	205	3,842,176
Chino Valley	4	58,000	—	—	—	—	—	—	4	58,000
Clarkdale	9	147,350	1	90,000	—	—	—	—	10	237,350
Cottonwood	11	180,800	1	240,000	—	—	6	3,500	18	424,300
Jerome	1	3,000	—	—	—	—	1	6,000	2	9,000
Prescott	34	393,691	4	505,896	—	—	30	78,773	68	978,360
Unincorporated Yavapai County	95	2,096,426	3	27,540	—	—	5	11,200	103	2,135,166
YUMA COUNTY	160	3,311,339	6	298,614	—	—	27	259,246	193	3,869,199
Parker**	3	94,300	—	—	—	—	4	47,120	7	141,420
Somerton	2	28,000	—	—	—	—	1	800	3	28,800
Unincorporated Yuma County	94	1,849,047	—	—	—	—	10	137,971	104	1,987,018
Wellton	—	—	—	—	—	—	—	—	—	—
Yuma	61	1,339,992	6	298,614	—	—	12	73,355	79	1,711,961
TOTAL Maricopa County, December 1979	1,673	33,248,577	115	60,955,163	26	13,362,979	1,390	10,343,631	3,204	117,910,350
TOTAL Maricopa County December 1978	3,085	76,634,091	193	37,947,823	26	2,573,380	1,317	18,453,051	4,621	135,608,345
PERCENT CHANGE	- 46	- 57	- 40	61	—	419	6	- 44	- 31	- 13
TOTAL Arizona, December 1979	3,810	67,147,006	204	77,828,332	29	13,554,942	2,009	17,105,577	6,052	175,635,857
TOTAL Arizona, December 1978	5,468	117,043,014	295	57,701,481	31	4,375,480	1,820	23,940,165	7,614	203,060,140
PERCENT CHANGE	- 30	- 43	- 31	35	- 6	210	10	- 29	- 21	- 14

N/C: Not collected.
*Includes mobile homes.

N/R: No report, data for this month will be combined with data reported for the following month.
**Includes November and December data.

Maricopa County Monthly Retail Food Prices

JANUARY, 1980

The Maricopa County Index of Food Consumed at Home increased 0.2 percent in January following a gain of 2.2 percent during December. The January index value of 231.7 indicates that county shoppers had to pay $23.17 for a similar basket of foodstuffs that would have cost $10.00 in 1967. This food basket could have been purchased for $21.12 one year ago.

The slower rate of increase during January was due to the decline in the subgroups *Fruits and Vegetables* (-2.3 percent) and *Dairy Products* (-0.4 percent), which were more than offset by gains in the subgroups *Meats, Poultry, Fish, and Eggs* (1.0 percent), *Other Foods* (0.9 percent), and *Cereals and Bakery Products* (0.4 percent).

Mixed changes occurred in the category *Fruits and Vegetables*. The large declines in lettuce (-23.6 percent) and oranges (-11.5 percent) contributed to the overall reduction despite higher prices for apples (1.9 percent) and potatoes (1.7 percent). The decrease in *Dairy Products* was due to the drop in prices for fresh milk (other than whole) and cream (-2.2 percent), and butter (-0.7 percent).

Higher prices for most beef and pork items, particularly noncanned ham (6.2 percent), bacon (4.2 percent), ground beef (3.2 percent), and chuck roast (3.2 percent), contributed to the jump in the subgroup *Meats, Poultry, Fish, and Eggs*. In addition eggs increased 3.5 percent. This increment was partially countered by a decrease in poultry and seafood, most notably poultry other than chicken (-7.9 percent) and fresh or frozen fish and shellfish (-3.9 percent). Prices generally rose in the *Other Foods* category, especially margarine (4.5 percent) and frozen prepared food (3.0 percent); however, prices for nuts, potato chips, and other snacks declined (-2.3 percent). Gains in flour and prepared flour mixes (5.6 percent), sweet rolls, coffee cake, and fresh doughnuts (3.3 percent), and cereal (2.1 percent) led to a higher value for the *Cereal and Bakery Products* subgroup despite a reduction in bread other than white (-6.2 percent).

A comparison of the October Food Consumed at Home Index for Maricopa County with index values for four selected metropolitan areas reveals that the outlays required to purchase a foodstuffs group in October, 1979 (obtainable for an outlay of $10.00 at 1967 average prices) were $22.50 in Maricopa County; $23.31 in Los Angeles-Long Beach; $24.19 in San Francisco-Oakland; $23.67 in Chicago-Northwestern Indiana; and $23.54 in the United States (average).

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	*Maricopa County[a] Jan. '80*	*Maricopa County[b] Oct. '79*	*United[*] States Oct. '79*	*Los Angeles[*] Long Beach Oct. '79*	*San Francisco Oakland Oct. '79*	*Chicago[*] North western Indiana Oct. '79*
Food Consumed at Home	231.7	225.0	235.4	233.1	241.9	236.7
Cereals and Bakery Products	217.1	210.2	227.0	231.5	232.9	230.5
Meats, Poultry, Fish, and Eggs	245.6	237.6	230.3	233.3	238.1	232.7
Dairy Products	204.1	200.3	213.3	200.4	202.4	210.2
Fruits and Vegetables	213.4	204.0	232.0	223.3	243.3	236.1
Other Foods Consumed at Home	252.1	247.0	278.0	272.4	297.1	283.8

[*] Computed from data contained in The Consumer Price Index, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

Note: Index Comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisons of food prices among various cities and the U.S. average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Metropolitan Phoenix Consumer Price Index

FOURTH QUARTER, 1979

Prices of consumer goods and services in the Phoenix metropolitan area rose 3.6 percent during the fourth quarter of 1979 — equivalent to an annualized rate of 15.3 percent. This increase is higher than that for the third quarter but lower than the rise for the second quarter of 1979. In the fourth quarter, a sharp division in trends occurred among the seven major categories, with three showing gains of over 4 percent, three showing decreases, and only *Food and Beverages* posting just a moderate increase.

The sharp rise in prices was higher than the annualized rate for the United States as a whole (12.1 percent) and for the comparison cities of Chicago and Los Angeles-Long Beach, which showed annualized increases of 14.0 and 12.9 percent respectively. The accelerating prices in the Phoenix area can be attributed primarily to the growing costs of *Homeownership, Transportation*, and *Medical Care*.

The Consumer Price Index (CPI) for the Phoenix Metropolitan Area, upon which these inflation measures are based, is prepared by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The quarterly CPI is based on comprehensive surveys undertaken by the Bureau of Business and Economic Research under cooperative cosponsorship with Valley National Bank of Arizona.

Food

The prices of Food at Home rose at a greater rate in the fourth quarter (2.6 percent) than during the third quarter (1.1 percent). Increases were reported for all *Food* categories with the largest rise in the Other Food category. Meats, Poultry, Fish, and Eggs continued to have a moderating effect on the index in the fourth quarter, showing the smallest change. Prices of Food Away From Home rose at an annualized rate of only 2.4 percent, the smallest increment since fourth quarter, 1977.

Housing

Housing costs soared 4.7 percent during the fourth quarter — an annualized rate of 20.3 percent. This jump in prices was greater than that recorded for the United States as a whole (17.1 percent annualized increase) or for Chicago (16.0 percent) or Los Angeles-Long Beach (16.7 percent). The largest contributing factor to the inflation in Homeownership was the soaring interest rate, reflected in the 11.8 percent increase during the past quarter in the contracted mortgage interest cost. Prices of new homes also forged ahead, showing a rise of 5.3 percent compared to third quarter's 2.9 percent. Additional rises in the Homeownership category were reported for lumber and paneling, and for plumbing and electrical supplies. Fuel and Other Utilities rose 1.2 percent (4.8 percent annualized), which was lower than the rate reported for the United States as a whole (a 7.9 percent annualized rate) or for Los Angeles-Long Beach (a 15.9 percent annualized rate). Chicago reported a quarterly decrease of 1.9 percent (a 7.9 annualized rate). In the Phoenix area, increases in the prices of natural gas and in garbage collection were tempered by the decrease in the costs of intrastate toll calls and by the moderate advance in the cost of electricity. Household Furnishings showed a 1.9 percent quarterly rise, which is greater than that of the previous two quarters.

Apparel and Upkeep

Apparel and Upkeep showed a decrease of 1.6 percent during the fourth quarter, a trend that is in contrast with other parts of the country. The United States as a whole reported a quarterly increase of 3.3 percent while Chicago and Los Angeles-Long Beach reported quarterly gains of 4.7 and 5.2 percent. In Phoenix, several types of women's and girls' clothing showed reductions in prices; specifically, women's coats, women's and girls' sportswear, and women's suits.

Footwear also declined in price while men's clothing increased.

Transportation

For the second quarter in a row, *Transportation* posted the greatest gain of the seven major categories, showing a 23.8 percent annualized figure. This jump in transportation is far above the rates posted for the United States average and for the two comparison cities. The advance in private transportation was caused primarily by price increases reported for new cars and tires. Gasoline prices rose a modest 0.7 percent in the quarter. Increases in airline fares and taxi fares resulted in the large rise (45.6 percent annualized) in public transportation.

Medical Care

Medical Care in the valley rose at an annualized rate of 29.2 percent due to rising costs of physicians' services and greater costs of commercial health insurance. This change is much greater than the annualized increases for the United States as a whole (10.6 percent) or for Chicago (2.8 percent) or Los Angeles-Long Beach (10.9 percent).

Entertainment

The 2.0 percent decrease in *Entertainment* costs in the Phoenix area (down 8.1 percent annualized) does not follow the trend of the rest of the country, which reported a 1.4 percent increase for the quarter (5.6 percent annualized). Boats and sports vehicles, sports and exercise equipment, toys, photographic supplies, and fees for participant sports all declined during the fourth quarter.

Other Goods and Services

Other Goods and Services showed a decrease of 1.0 percent for the quarter, largely due to lower costs reported for college books and supplies. Personal care items showed a gain due to increases reported in the costs of products for hair, beauty parlor services for women, and cosmetics.

TABLE 1

METROPOLITAN PHOENIX CONSUMER PRICE INDEX
FOURTH QUARTER 1979
(1969 = 100)

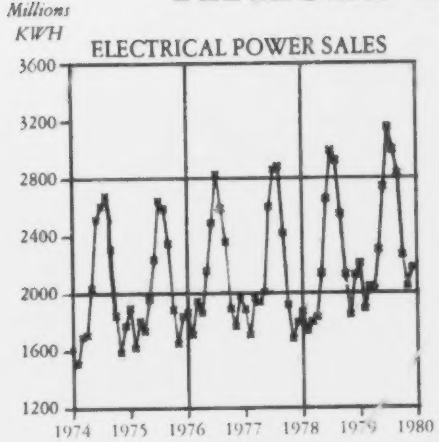
Group	*Index Last Quarter*	*Index This Quarter*	*Percentage Change from Last Quarter*	*Annualized Percentage Increase*
ALL ITEMS	199.7	206.9	3.6	15.3
Food and Beverages	201.4	205.0	1.8	7.2
Food	206.1	210.1	1.9	7.9
Food at Home	217.9	223.5	2.6	10.6
Cereals and Bakery Products	210.9	218.0	3.3	
Meats, Poultry, Fish, and Eggs	215.9	216.0		
Dairy Products	190.7	198.1	3.9	16.4
Fruits and Vegetables	201.3	204.9	1.8	7.4
Other Foods at Home	204.2	213.5	4.6	19.6
Food Away From Home	175.0	176.0	.6	2.4
Alcoholic Beverages	139.4	139.1	-.2	-.7
Housing	195.1	204.3	4.7	20.3
Shelter	198.1	209.9	5.9	26.0
Rent, Residential	152.8	154.0	.8	3.1
Homeownership	204.9	219.7	7.2	32.0
Fuel and Other Utilities	221.1	223.7	1.2	4.8
Household Furnishings and Operation	176.6	179.9	1.9	7.8
Apparel and Upkeep	172.2	169.4	-1.6	-6.6
Apparel Commodities	167.6	165.4	-1.3	-5.4
Men's and Boys' Apparel	142.2	145.3	2.2	9.0
Women's and Girls'	173.3	165.4	-4.5	-19.4
Footwear	211.8	210.7	-.5	-2.1
Transportation	208.1	219.6	5.5	23.8
Private Transportation	207.8	218.7	5.2	22.6
Public Transportation	212.5	233.4	9.8	45.6
Medical Care	267.3	285.0	6.6	29.2
Entertainment	170.9	167.6	-2.0	-8.1
Other Goods and Services	204.1	202.1	-1.0	-4.0
Personal Care	196.1	198.8	1.4	5.5

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University

	United States		*Chicago*		*LA-Long Beach*	
Group	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*
ALL ITEMS	2.9	12.6	3.3	14.0	3.1	13.2
Food	1.2	9.8	2.4	10.0	2.3	9.9
Food at Home	0.9	9.2	2.2	8.4	3.0	10.5
Food Away From Home	2.0	11.2	2.7	13.4	1.1	9.1
Housing	4.0	14.3	3.8	17.4	3.9	14.2
Shelter	4.9	16.3	5.4	19.7	4.3	15.7
Fuel and Utilities	1.9	15.3	1.9	15.3	3.8	14.5
Household Furnishings & Operations	2.0	6.6	1.9	10.5	2.7	7.6
Apparel and Upkeep	3.3	4.6	4.7	3.7	5.2	6.1
Transportation	2.4	17.5	3.4	17.4	1.8	19.1
Medical Care	2.6	9.3	0.7	7.2	2.6	9.5
Entertainment	1.4	7.4	2.3	13.4	2.0	9.6
Other Goods and Services	3.0	7.5	5.1	6.9	0.9	5.5

Source: Metropolitan Phoenix data compiled by Bureau of Business and Economic Research, College of Business Administration, Arizona State University; other data from U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

Arizona Economic Indicators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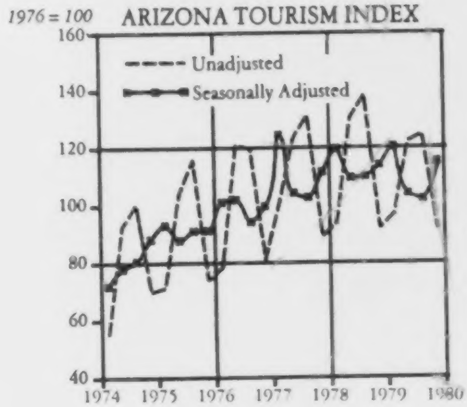
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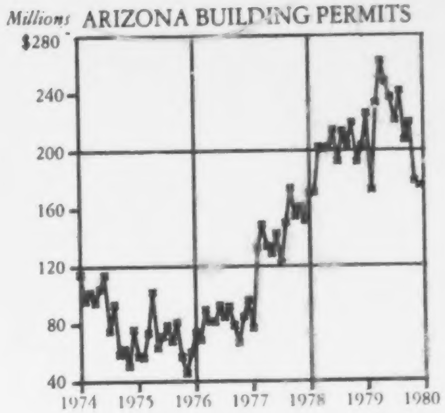
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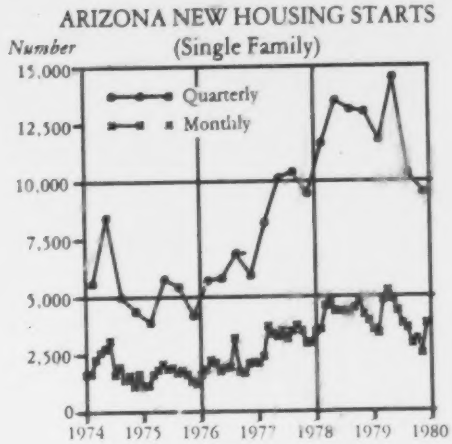
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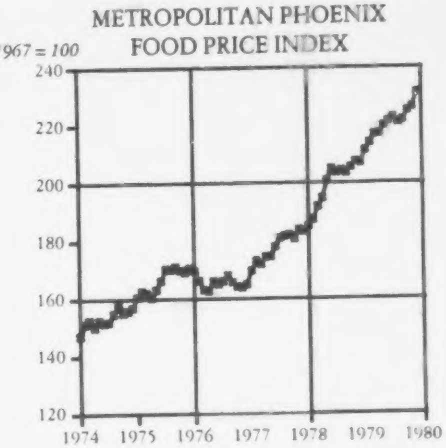
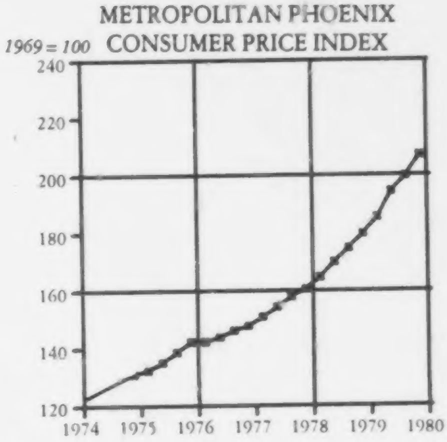

METROPOLITAN PHOENIX FOOD PRICE INDEX


METROPOLITAN PHOENIX CONSUMER PRICE INDEX

Source: All data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

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March 1980

ARIZONA BUSINESS

1979 in Review:

Consumer Prices, Food, Construction, Tourism

Bureau of Business and Economic Research
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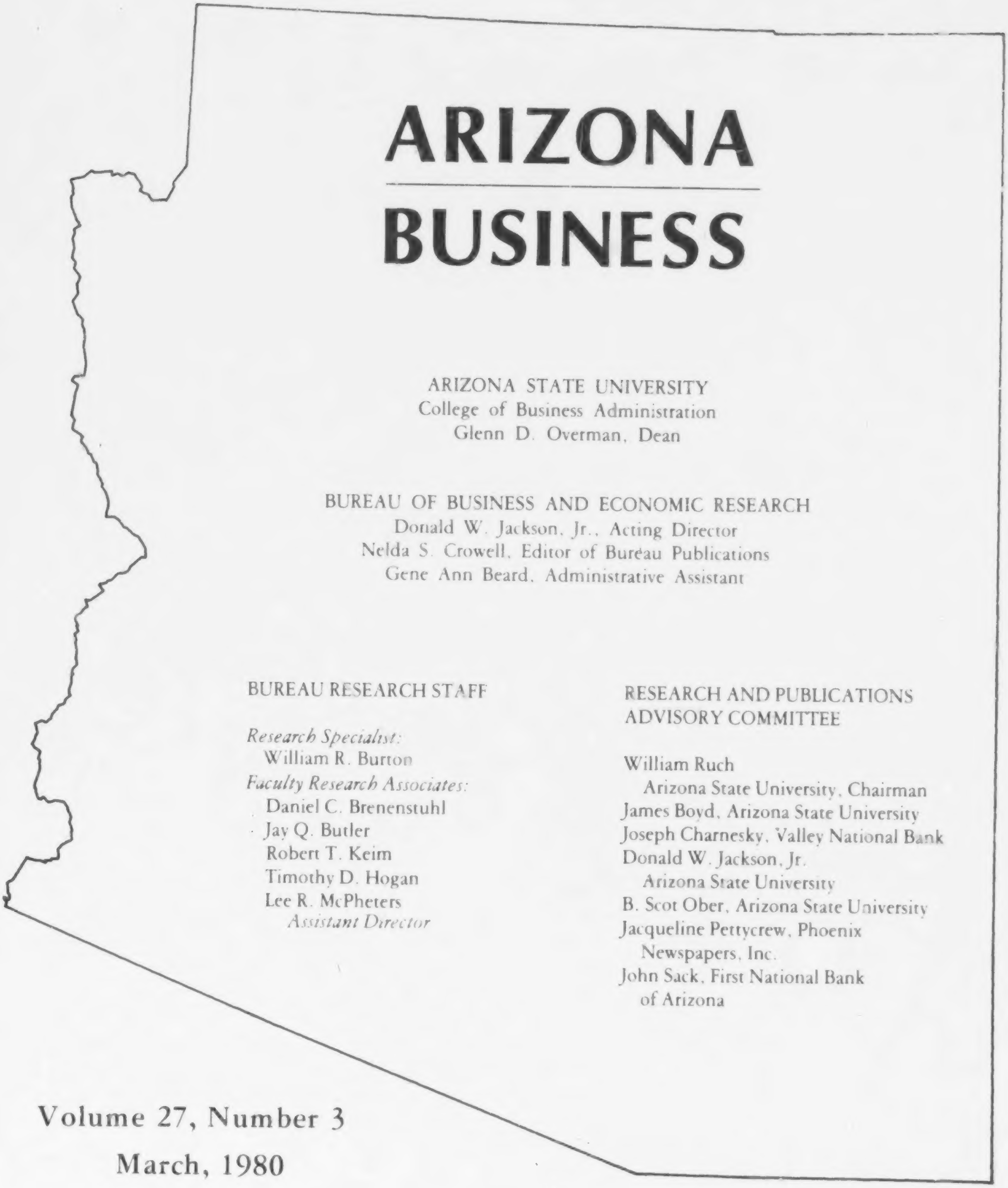

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In This Issue

The 1979 Consumer Price Index:
Its Background and Significance 3
Timothy D. Hogan

Food Prices: 1979 10
Timothy D. Hogan

Construction Activity: 1979 17
Jay Q. Butler

Arizona Building Permits:
Year-end Report, 1979 22

Arizona New Housing Starts:
Year-end Report, 1979 24

Arizona Business Scene —
Arizona Tourism: A $4 Billion Year in 1979 25

A Survey of Arizona Business Conditions 27
Harold Fearon

Arizona Sales of Electrical Power 28

Arizona New Housing Starts:
Monthly Report, January 29

Arizona Building Permits:
Monthly Report, January 30

Maricopa County Monthly
Retail Food Prices, February 32

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Report To The Reader

In reviewing 1979, inflation is evident in nearly every area of the Arizona economy. This issue of *Arizona Business* assesses the overall 1979 peformance of four important economic indicators: consumer prices, food prices, construction activity, and tourism.

The consumer price index showed a 14.2 percent increase; construction dollar value was up 10 percent (although the number of permits dropped by 1 percent); food prices increased 10.6 percent; and tourist expenditures were up 18 percent.

The Consumer Price Index is a widely used indicator of price changes and cost of living. ASU economist, Dr. Timothy Hogan, Faculty Research Associate in the Bureau of Business and Economic Research, reviews the CPI as a measure of inflation and suggests the GNP Implicit Price Deflator as an alternate measure of inflation.

Construction activity was characterized by several developments: a decline in the dominance of the single-family home, a phenomenal increase in industrial permits, a decrease in Maricopa County activity compared to the rest of the state, and a strong showing in apartment development. For 1980, Dr. Jay Q. Butler, also a Faculty Research Associate in the ASU Bureau, forecasts a year of challenges brought about by increasing interest rates and continuing inflation.

Food prices showed an increase in 1979, as expected, but the good news is that the increase was less than in 1978 and comparable to the national average. *Dairy Products* as well as *Meats, Poultry, Fish, and Eggs* were the main causes of the increase.

Tourism is now a $4 billion industry in Arizona with evidence of a shift from auto travel to airline travel; airline tourists now account for over half of the total tourism expenditures.

All the research in these four important areas of economic activity is conducted by faculty members and graduate students in the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

Special thanks are offered to the Valley National Bank, who is cosponsor of the CPI and food price studies; and to the Arizona Office of Tourism, cosponsor of the tourism research.

The 1979 Consumer Price Index: Its Background and Significance

TIMOTHY D. HOGAN

For almost sixty years, the United States Bureau of Labor Statistics (BLS) has compiled the statistical measure most often used to measure inflation — the CPI or Consumer Price Index. This index provides a summary measure of changes in prices of goods and services typically purchased by American households.

The CPI, just one of the price indexes produced by the federal government, was originally developed by the BLS to measure changes in living costs for wage negotiations in a number of shipbuilding and industrial centers for the Shipbuilding Labor Adjustment Board during World War I. Until recent years, however, the CPI received little popular attention and was primarily used as one of the many economic indicators employed for economic research. With the emergence of inflation as one of our principal economic problems, interest in and use of the CPI has grown, so that today the monthly release of CPI figures is a major news item and a statistic of vital concern to a large segment of the U.S. population.

As the economic importance of the CPI has grown, controversy concerning whether it provides an accurate measure of inflation has also been growing. Because of the increased interest in the CPI and the question of how well it measures inflation, this article includes first a discussion of the uses of the CPI and the methods used to compile the CPI, plus its limitations, before presenting a review of the 1979 Metropolitan Phoenix CPI.

USES OF THE CPI

The wide variety of uses for the CPI can be classified into three categories: as an index of price changes, as an index of changes in the cost of living, and as an escalator for many kinds of payments.

Since inflation is defined as an increase in the general price level, the CPI is generally employed to provide a measure of inflation in the U.S. economy even though it covers only consumer goods, rather than all products. The CPI is also employed in a related task as a way of adjusting data for the effects of inflation. In this way, for example, the volume of retail sales in 1979 can be compared with that of earlier years abstracting from the distorting influences of inflation.

When first published, the CPI was called a cost-of-living index rather than a price index, and it is widely used throughout the U.S. economy as a measure of

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The 1979 rise in Consumer Price Index of 14.2 percent was the largest yearly increase ever recorded over the ten-year history of the Metropolitan Phoenix CPI. This article provides some insight into the CPI itself and delineates the areas of increase. The Metropolitan Phoenix Consumer Price Index is compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank.

Dr. Timothy D. Hogan is Associate Professor of Economics and a Bureau Faculty Research Associate in the ASU College of Business Administration.

change in living costs over time. In this role, the BLS estimates that approximately half of the United States population is directly affected by changes in the CPI.[1] Millions of American workers are covered by labor contracts that include automatic cost-of-living adjustments. Furthermore, most labor negotiations that do not include mechanisms for automatic adjustment are based on recent and expected future changes in the CPI. In addition to effects upon wage and salary levels, the CPI is also used to adjust other income payments or income supplements of millions of Americans — Social Security payments, federal and military retirement benefits, food stamp allowances, and payments from many federal, state, and local welfare programs.

Over and above its use in adjusting wage and pension payments, the CPI is used as a base for escalator clauses that are being included in a growing number of rental, lease, royalty, and other types of contracts. Many times this CPI-based method is used primarily for convenience, since anticipated cost changes may have very little relation to changes in prices.

CPI METHODOLOGY AND ITS LIMITATIONS

As its name implies, the CPI (Consumer Price Index) has been developed to measure changes over time in the prices of goods and services typically purchased by consumers. It compares the cost of a *fixed* market basket of goods and services in a given time period with the cost of purchasing the *same* market basket during a particular base period.

At present, the United States CPI compares prices in 1979 with prices for consumer goods and services during 1967. That is, for comparative purposes, the general price level during the base year, 1967, has been defined as equal to 100. If the value of the CPI in a given period were 150, this would imply that prices in general are 50 percent higher than they were during the base period: in other words, it would cost 1.5 times as much to buy the same market basket of goods as it did during the base year of 1967.

By looking at changes in the CPI measure, we can get a summary measure of the rate of change in the prices that all of us are paying for consumer goods and services. For example, if the CPI were to increase to 165 this month compared with the value of 150 a year ago, this would imply that rate of inflation for consumer prices was 10 percent over that period (the index increased 15 points over the year from a base of 150 — a 10 percent increase).

On the other hand, the CPI has not been designed as a "cost-of-living" index and may not accurately measure changes in living costs, even though it is widely used as a measure of such changes. A look at the CPI and the way it is constructed will show why this is true. As stated above, the CPI is based upon changes in the prices of a *fixed* market basket of goods and services. To establish the kinds of products that are to be priced and their importance, information from a large-scale survey of expenditure patterns of households throughout the nation has been compiled in order to determine a sample of several hundred products and services to be priced as representative of the "typical market basket" purchased by United States consumers. In addition, this information is also utilized to determine, on the average, what proportion of their total consumer expenditures households do spend on each type of good and service. These proportions, or "weights" are then used to aggregate all of the individual price changes to produce a single summary measure — the CPI.

The use of the CPI as a measure of changes in living costs has led to the main controversy surrounding it. Each period every item included in the fixed market basket is priced and its price change is included in the overall CPI figure. This methodology conflicts with most consumers' buying patterns for certain goods, particularly in the homeownership category. While the average homeowner stays in the same house for a number of years and therefore experiences no changes in principal and interest payments over the mortgage life, the CPI methodology includes changes in current home prices and interest charges into the index each period. When these two items make up 16.5 percent of the total expenditures (as measured by sum of the weights for these two items used in the computation of the CPI),[2] the recent large increases in housing prices and mortgage rates can contribute to a rapid rise in the CPI.

Given its construction, the CPI is not limited to measuring changes in the cost of only necessities; it reflects price changes in all kinds of good purchased by households — color TVs, airline fares, college tuition, theater tickets, etc. Furthermore, since the CPI is based on a fixed market basket of goods, it does not reflect changes in expenditure patterns. Nevertheless most consumers adjust their shopping practices according to changes in relative prices, as, for example, when households buy more oranges as the price of apples increases, or purchase more chicken as the price of beef rises. In addition, since it reflects only consumer expenditures, the CPI does not include changes in income and social security taxes; yet, a true cost-of-living index should account for changes in these taxes, which absorb a substantial part of most households' incomes.

Because of such limitations, critics contend that the CPI tends to overstate the real increases in the cost of living experienced by most Americans in recent years. The CPI measures changes in consumer prices; each household will be affected by a particular set of price changes differently, depending upon how each household spends its income. Calculations by the National Center for Economic Alternatives indicate that the cost of necessities increased more rapidly than the CPI during the last year (primarily because of rising energy costs), while the increase in the cost of living was probably substantially less than measured by the change in the CPI for many families who already own their own homes and substantial stocks of durable goods.

As an alternative measure of inflation, many economists feel that another price index, also produced by the federal government, known as the "GNP Implicit Price Deflator," more accurately represents the real rate of inflation than does the CPI. The GNP Deflator is used used by the U.S. Department of Commerce in adjusting Gross National Product figures to account for inflation. While utilizing price data very similar to that employed in the calculation of the CPI, the Deflator is based upon a different methodology, which does not suffer from some of the limitations associated with the CPI. A detailed discussion of the Deflator methodology is obviously outside the scope of this article. In brief, however, the Deflator treats housing costs in a different manner and it does not assume a *fixed* market basket. As an example of the difference between the two measures, the average annual rate of inflation during 1979, as measured by the CPI, was 11.3 percent; as measured by the change in the GNP Implicit Price Deflator, it was 8.8 percent.[3]

THE METROPOLITAN PHOENIX CPI

In spite of its limitations, however, the CPI continues to be an important indicator of price changes in major metropolitan areas. Because the Bureau of Labor Statistics (BLS) does not compile a Consumer Price Index (CPI) for Phoenix, the Arizona State University Bureau of Business and Economic Research, with BLS cooperation, developed a Metropolitan Phoenix CPI in 1974.[4] Using the fourth quarter of 1969 as the base period, CPI figures for the fourth quarters of 1969 through 1974 were compiled, and quarterly CPI figures have been produced by the Bureau since 1975.

In line with their policy of periodic revisions in CPI methodology, the Bureau of Labor Statistics began publication of revised CPI figures in January 1978.[5] Changes in methodology necessary for consistency in the Metropolitan Phoenix CPI were implemented during 1978 with the help of the BLS. Beginning with the first quarter of 1979, the Bureau of Business and Economic Research began publication of Metropolitan Phoenix CPI figures based upon the revised methodology.

Several changes have been incorporated into the revised index:

•The revised Metropolitan Phoenix CPI now represents the purchasing patterns of all urban consumers in the metropolitan area, rather than just urban wage earners and clerical workers as represented in the previous CPI. The index is consistent with the "All Urban Consumer CPI" series published by the Bureau of Labor Statistics.

•The new methodology updates the sample of items priced and the relative-importance weights assigned to each individual expenditure group on the basis of more recent consumer survey information collected in the 1970s, rather than the information from the 1960s on which the original index was based.

•The procedures utilized to select both the outlets in which pricing will be carried out and the individual items to be priced in those outlets have been revised, so that the sample is more representative of the set of goods and services being purchased by most Phoenicians.

To provide for continuity, the revised CPI has been linked to the previous series for the fourth quarter of 1978, just as the Bureau of Labor Statistics linked their revised series to the previous series in December, 1977. The base period for the revised index has *not* been changed; it remains 1969 = 100. For reference purposes, a complete series of the Metropolitan Phoenix All Items CPI is presented in Table 1.

PHOENIX CONSUMER PRICES IN 1979

The rise in consumer prices in Maricopa County during 1979 was the largest increase recorded in the ten-year history of the Metropolitan Phoenix CPI. The rate of inflation has accelerated during the 1976-1979 period — from 5.8 percent in 1976 to 10.5 in 1978 — as a result of the economic expansion after the 1974-1975 recession and the impact of higher oil prices.

TABLE 1

METROPOLITAN PHOENIX
CONSUMER PRICE INDEX
1969-1979

	1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*	*Annual Average*	*Annual Percentage Change*
1969	—	—	—	100.0	—	—
1970	—	—	—	104.5	—	4.3
1971	—	—	—	110.0	—	5.3
1972	—	—	—	112.2	—	2.0
1973	—	—	—	120.8	—	7.7
1974	—	—	—	131.0	—	8.4
1975	132.3	135.1	138.7	142.2	137.1	8.5
1976	142.2	143.8	146.1	147.7	145.0	5.8
1977	150.9	154.3	157.8	160.6	155.9	7.5
1978	164.6	169.9	174.7	179.7	172.2	10.5
1979	185.4	194.4	199.7	206.9	196.6	14.2

Source Metropolitan Phoenix CPI compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

But with a recession widely predicted to begin last year, it was expected that the rate of price increases would decline somewhat during 1979. The economy was much stronger than expected, however, and this strength, combined with further large increases in energy costs, contributed to the 14.2 percent jump in the Metropolitan Phoenix CPI during 1979. A detailed breakdown of the pattern increases in the Phoenix CPI, along with comparison data for the United States and the Chicago and Los Angeles-Long Beach metropolitan areas, are shown in Table 2.

Although the overall rate of price increase was substantially higher, prices in only three of the seven categories comprising the local CPI rose faster in 1979 than in 1978 — *Housing* (18.8 percent), *Transportation* (11.9 percent) and *Medical Care* (11.4 percent).

While prices in the *Food* category rose significantly (10.2 percent), this increase was smaller than that recorded in 1978 (12.3 percent), when the *Food* category was one of the two main contributors to inflation in consumer prices. Examination of the components of the *Food* category reveals that prices of food purchased for consumption at home rose more slowly in 1979 than in 1978 (10.6 versus 12.2 percent), which more than compensated for a jump in prices in the Food Away from Home subcategory (9.3 percent compared with 6.6 percent in 1978). (A detailed analysis of what happened to Phoenix food prices during 1979 is presented in the following article.)

Price increases in the *Housing* category were the primary reason that the Metropolitan Phoenix CPI rose at a record rate during 1979. Although three subcategories experienced relatively moderate increases — Rent (6.1 percent), Fuel and Utilities (4.4 percent), and Household Furnishings and Operations (5.9 percent) — costs associated with homeownership (purchase price, mortgage interest costs, taxes, insurance, and maintenance costs) jumped almost 30 percent during 1979. These increases were dramatically larger than those experienced in 1978. That year saw an 11.5 percent increase in the *Housing* category and a 16.0 percent rise in the Homeownership subcategory, which were themselves record rates up to that time.

TABLE 2

CONSUMER PRICE CHANGES 1978-1979
Phoenix, United States Chicago, and Los Angeles

	Percentage Increase, 1978 1979			
Expenditure Category	*Phoenix*	*U.S.*	*Chicago*	*Los Angeles Long Beach*
All Items	14.2	11.3	12.5	10.8
Food	10.2	10.9	10.9	11.0
Food at Home	10.6	10.8	10.5	11.4
Food Away From Home	9.3	11.2	11.8	10.5
Housing	18.8	12.2	15.4	10.6
Shelter	23.7	13.9	17.8	11.3
Rent	6.1	7.3	6.6	9.8
Homeownership	29.4	15.5	21.3	11.8
Fuel and Utilities	4.4	17.8	12.2	9.7
Household Furnishings and Operations	5.9	7.1	8.9	7.6
Apparel and Upkeep	7.3	4.4	2.8	3.7
Men's and Boys'	1.6	2.2	-1.7	3.6
Women's and Girls'	4.6	1.7	-0.6	-0.6
Footwear	12.5	7.9	6.5	7.0
Transportation	12.0	14.3	13.6	16.1
Private	11.8	14.8	14.5	16.5
Public	14.7	6.7	4.3	8.7
Medical Care	11.4	9.3	8.8	10.2
Entertainmen	6.8	6.7	11.4	5.7
Other Goods and Services	5.7	7.3	5.9	6.4

Source: Metropolitan Phoenix data: Bureau of Business and Economic Research, College of Business Administration, Arizona State University; other data computed from indexes compiled by the U.S. Department of Labor, Bureau of Labor Statistics.

During 1979, price increases in the *Apparel and Upkeep* category moderated slightly (7.4 percent compared with 7.7 percent in 1978). Jumps in the prices of leather goods, reflected in the 12.5 percent rise in the Footwear subcategory, were offset by smaller increases in the clothing subcategories (Men's and Boys', 1.5 percent; Women's and Girls', 4.6 percent).

As mentioned above, prices in the *Transportation* category rose rapidly in 1979 (11.9 percent versus 9.7

percent in 1978). With big increases in the prices of new cars, gas, maintenance, and repair, the Private Transportation subcategory recorded an 11.8 percent rise. Prices in the Public Transportation subcategory rose even more rapidly during 1979 (14.7 percent) due to big price increases for almost every type of public transportation.

In the *Medical Care* category, big jumps in the cost of hospital care, in physicians' and dental services, and in the prices of over-the-counter drugs led to an overall increase of 11.4 percent in 1979 compared with 8.4 percent during the previous year.

The price experience for the final two expenditures categories — *Entertainment* and *Other Goods and Services* — was much more favorable in 1979; prices in the *Entertainment* category rose 6.8 percent, even though the prices of books, movies, and photo supplies increased substantially, while the *Other Goods and Services* category recorded a 5.7 percent increase, despite large price hikes for some personal care items, such as beauty parlor services and dental and shaving products.

Comparing Phoenix with the U.S. Average

During 1979, prices seem to have increased more rapidly in Phoenix than in the nation as a whole (14.2 percent in Phoenix versus 11.2 percent in the overall United States). Examination of the relative price changes of individual expenditure categories shows a very diverse pattern, however. While prices of *Housing* (18.8 compared with 12.2 percent), *Apparel and Upkeep* (7.4 versus 4.4 percent), and *Medical Care* (11.4 versus 9.3 percent) rose faster in Phoenix than in the overall United States, the rate of price increases for *Food* (10.2 versus 10.9 percent) and *Transportation* (11.9 versus 14.3 percent) were substantially lower in Phoenix than experienced in the United States as a whole. In fact, if prices in the Homeownership subcategory had risen at the same rate as Homeownership costs increased in the national CPI (15.5 percent), the change in the overall Metropolitan Phoenix CPI would have been lower than that experienced by the United States CPI — 10.5 percent compared with 11.2 percent.

Phoenix, Los Angeles, and Chicago

The 14.2 percent increase actually recorded for Phoenix in 1979 also outstripped the rate of increase in consumer prices in Chicago and Los Angeles-Long Beach — the two metropolitan areas historically used for comparison purposes with the Metropolitan Phoenix CPI. The patterns of relative price changes across individual expenditure categories were similar to the United States-Phoenix comparison: Prices in the *Housing*, *Apparel*, and *Medical Care* categories rose faster in Phoenix during 1979, while *Food* and *Transportation* prices increased more rapidly in Chicago and Los Angeles-Long Beach.

The fact that the Metropolitan Phoenix CPI has risen more rapidly than that of the United States or the comparison cities does not mean that prices themselves are higher in Phoenix than in the nation as a whole. The CPI measures only changes in prices over time; it cannot be used to compare the level of prices and/or living costs from one area to another. A higher CPI value for Phoenix means only that prices in Phoenix have increased faster since the base period than they have in the nation as a whole or in the two comparison cities.

A TEN-YEAR PERSPECTIVE

Since 1979 is the tenth year for which the Metropolitan Phoenix CPI figures are available, it is appropriate to look briefly at the inflation record for the past decade. Data on the magnitude of price increases from 1969 to 1979 are presented in Table 3. The first column sets forth the total percentage increases in consumer prices in Phoenix, the United States, Chicago, and Los Angeles-Long Beach over the 1969-1979 period. The second column converts each total percentage change figure into its equivalent average annual percent change during the ten-year period. First and foremost, these figures demonstrate the shocking rate at which consumer prices have shot upward over the past decade. Using the Phoenix figures, consumer prices have more than doubled during the 1970s.

The *Apparel and Upkeep* and the *Entertainment* categories have experienced the smallest total price increases since 1969; while price increases in the *Medical Care* category have outpaced those of all other categories by a large margin. Over the whole decade, prices in the *Food* and *Transportation* categories also rose more rapidly than did the *All Items* index.

Comparison of the four areas shows that the rate of inflation in consumer prices in the Phoenix area (106.9 percent) was slightly higher over the period than that experienced in the nation as a whole (98.0 percent) or in the two comparison cities (95. 3 percent in Chicago and 96.4 percent in Los Angeles). The average annual increases also demonstrate that, over the ten-year period on an annualized basis, the differences were minor — an average inflation rate of 7.5 percent for Phoenix compared with a 7.1 percent rate for the United States, for example.

Comparisons of the major expenditure categories demonstrate that for a majority of the categories, prices rose faster in Phoenix than in the United States or in the two comparison cities. Only in the *Food* and *Entertainment* categories was Phoenix's record substantially better than that for the United States as a whole or for Chicago; in the case of Los Angeles-Long Beach, only in the *Food* category did Phoenix have a smaller total increase over the 1969-1979 period.

In the *Housing* category, which has risen sharply in recent years, prices in the Phoenix area have actually increased slightly less than they have in the United States as a whole over the decade. Furthermore, housing prices have increased only slightly more than the increases experienced in the two comparison cities. Of all the categories, the increase recorded for Phoenix area *Medical Care* prices (185 percent) suffers most in comparison with the price rises for other areas. Although price increases in the *Apparel and Upkeep* category were among the smallest during the period, comparison of the figures in Table 3 shows that the Phoenix prices rose substantially more (69.4 percent) than prices in Chicago (35.3 percent), Los Angeles (39.8 percent), or in the United States as a whole (39.8 percent).

Comparisons of relative rates of inflation between Phoenix and the other areas of the country have not been unfavorable through the entire 1969-1979 period. Consumer prices in the Phoenix area have increased more rapidly than in the United States for the past three years, but prior to 1977 the comparative experience was much different. For the 1969-1976 period, the average annual rate of increase in consumer prices in the Phoenix area was lower than the United States rate (5.6 percent versus 6.5 percent) and also lower than the average rates of inflation in Los Angeles-Long Beach (6.4 percent) or in Chicago (6.0 percent). Only in the past three years of the decade, which have been characterized by extremely strong economic growth in Arizona and in the Phoenix area, has the local inflation rate worsened relative to that experienced by the nation as a whole.

CONSUMER PRICES IN 1980

After reviewing trends in consumer prices during 1979 and the entire 1969-1979 period, the obvious question is, What will be the rate of price increase in

TABLE 3

CONSUMER PRICE CHANGES, 1969-1979
Phoenix, United States, Chicago, and Los Angeles

Geographic Area and Expenditure Category	*Percentage Change 1969-1979*	*Average Annual Percentage Change 1969-1979*
Phoenix[a]		
All Items	106.9	7.5
Food	110.1	7.7
Housing	104.3	7.4
Apparel and Upkeep	69.4	5.4
Transportation	119.6	8.2
Medical Care	185.0	11.0
Entertainment	67.6	5.3
Other Goods and Services	102.1	7.3
United States[b]		
All Items	98.0	7.1
Food	115.3	8.0
Housing	105.4	7.5
Apparel and Upkeep	49.4	4.1
Transportation	97.8	7.1
Medical Care	111.4	7.8
Entertainment	73.4	5.7
Other Goods and Services	80.1	6.1
Chicago[b]		
All Items	95.3	6.9
Food	114.9	7.9
Housing	100.9	7.2
Apparel and Upkeep	35.3	3.1
Transportation	92.6	6.8
Medical Care	115.0	8.0
Entertainment	80.9	6.1
Other Goods and Services	78.3	6.0
Los Angeles-Long Beach[b]		
All Items	96.4	7.0
Food	113.7	7.9
Housing	102.7	7.3
Apparel and Upkeep	39.8	3.4
Transportation	99.0	7.1
Medical Care	119.0	8.2
Entertainment	59.1	4.8
Other Goods and Services	73.4	5.7

[a] Percentage changes for the 1969-1979 period for Phoenix were computed on the basis of the change between forth quarter 1969 and fourth quarter 1979, since only fourth quarter figures are available prior to 1975.

[b] Percentage changes for the 1969-1979 period for the United States, Chicago, and Los Angeles-Long Beach were computed from annual averages.

Source: Metropolitan Phoenix data: Bureau of Business and Economic Research, College of Business Administration, Arizona State University; other data: U.S. Department of Labor, Bureau of Labor Statistics.

the United States and in the Phoenix area during 1980? In the December issue of *Arizona Business* each year, Professors John A. Cochran and Richard Winkelman present detailed economic forecasts for the upcoming year. In his forecast for the United States economy, Professor Cochran made the following statement concerning the expected rate of increase in U.S. consumer prices. "The high inflation rate . . . of 1979 . . . should fall to about 9½ percent next year."[6]

Referring to the outlook for the Phoenix area economy in the same issue of *Arizona Business*, Professor Winkelman forecast that, "The inflation outlook for 1980 is somewhat better. The forecast is that the Metropolitan Phoenix CPI will average 216.1 over 1980, which calculates to an average rate of inflation of 11 percent with a steady diminution in the rate of inflation over the four quarters."[7]

Both of these forecasts are relatively consistent with the outlook of the President's Council of Economic Advisors, which forecast that consumer prices would increase 10.4 percent in 1980 with the annual rate of inflation down to 9 to 9½ percent by late 1980.[8]

None of these forecasts are very cheery, with predictions of inflation running at or very nearly at double-digit levels during the year, but at least they contain an optimistic note for a decline in the inflation rate compared with 1979. Unfortunately, more recent information provides a gloomier outlook on the price front for 1980. In the first month of the new year, the United States CPI rose 1.4 percent — an annualized rate of more than 18 percent; producer prices (formerly termed wholesale prices) for January also increased at a similar rate. Since retail increases usually lag behind wholesale prices, the impact of the big jump in producer prices is probably still to be reflected in future increases in the CPI. More recent economic forecasts also predict a higher inflation rate throughout 1980. The January 28, 1980, Wharton forecast, for example, predicts an inflation rate of 12 percent for 1980, although still with a declining rate during the later part of the year.[9]

It must be remembered, however, that 1980 is an election year, and it is likely that United States economic conditions in general and historically high inflation and interest rates may yet become important issues in the Presidential campaign. Thus, new actions by the federal government to reduce inflation may well be forthcoming later in the year. Based upon the Carter administration's assurances that direct controls will not be used, other policy options could not be expected to have substantial impact, other than psychological, upon inflation until after some lag.

SUMMARY AND CONCLUSION

The average annual increase in consumer prices in 1979 was 14.2 percent in the metropolitan Phoenix area and 11.3 percent for the United States as a whole. The substantial divergence of the Phoenix rate from the national experience can be attributed almost entirely to the very rapid increase in the costs of homeownership (primarily house prices and mortgage costs). Without these big increases in the Homeownership subcategory, Phoenix area prices would have actually increased at a slower rate than the United States average.

With Phoenix inflation rates at record levels, little hope can be offered for a substantial decline in inflation during 1980. Only the initial sections of the article provide encouragement to Phoenix area consumers. For many, the CPI overstates the impact of consumer price increases upon our living costs. The alternative price index often suggested by critics of the CPI as a better measure of changes in the cost of living, the "GNP Implicit Price Deflator" was shown to have indicated an inflation rate of "only" about 9 percent in 1979 for the United States as a whole — not the 1 percent rate of inflation of the 1950s and early 1960s, but better than the 1979 rate of over 11 percent, as measured by the CPI.

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[1] U.S. Department of Labor, Bureau of Labor Statistics, *The Consumer Price Index: Concepts and Content Over the Years*, Report 517, Washington, D.C., 1977, p. 2.

[2] Unpublished data provided by the U.S. Department of Labor, Bureau of Labor Statistics.

[3] Calculated from data in U.S. Council of Economic Advisors, *1980 Economic Report of the Presicent*, Washington, D.C., 1980, Table B-4.

[4] Readers interested in the background and the methodology developed for the metropolitan Phoenix CPI should refer to Stephen C. Hora, "Consumer Prices in the Phoenix Metropolitan Area," *Arizona Business*, August-September, 1975, pp. 3-13.

[5] For a detailed description of the recent CPI revisions, see the U.S. Department of Labor, Bureau of Labor Statistics, *The Consumer Price Index Revision 1978*, Washington, D.C., 1978.

[6] John A. Cochran, "National Economic Outlook for 1980," *Arizona Business*, December 1979, p. 5.

[7] Richard Winkelman, "Economic Forecast for Arizona: 1980," *Arizona Business*, December 1979, p. 10.

[8] U.S. Council of Economic Advisors, *1980 Economic Report of the President*, p. 67.

[9] Wharton Econometric Forecasting Associates, *The Wharton Quarterly Model Forecast, January 28, 1980*, Philadelphia, 1980.

[10] The work of Daniel Freeman, Martha E. James, David Jones, Bill McDonald, Mary Nicholson, Jo Stimson, Judith Thompson, and Bonnie Wilson in the revising of the CPA methodology and in compiling the index during the 1979 is gratefully acknowledged.

Food Prices in 1979

TIMOTHY D. HOGAN

Retail prices for food at home in the Phoenix metropolitan area increased 10.6 percent in 1979, reflecting a slower rise than the 12.2 percent increase in 1978. Furthermore, the 1979 experience of inflation in food prices for the Phoenix area compared favorably with the 10.8 percent rise experienced by the nation as a whole during 1979.

Although food prices are a very visible indicator of inflation, food purchased for consumption at home actually makes up only a relatively small part of the total household expenditures. In addition, the 10 percent increase in food prices was substantially lower than the 14.2 percent annual increase recorded by the Metropolitan Phoenix CPI in 1979. In fact, higher retail food prices contributed less than one-twelfth of the total increase in consumer prices during the past year.

Although food prices in Maricopa County have continued to rise, the rate of that increase has slowed to the point where Phoenix area food prices are rising at a rate that is comparable with the rest of the nation. The Maricopa County Food Price Index is compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank.

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The following section details the pattern of food price changes in metropolitan Phoenix during the past year. The next section explains some of the factors that led to those changes, followed by a comparison of the 1979 Phoenix experience with corresponding price increases in Chicago, Los Angeles, and the United States as a whole. The final section discusses the probable trends in food prices during 1980.

THE 1979 EXPERIENCE

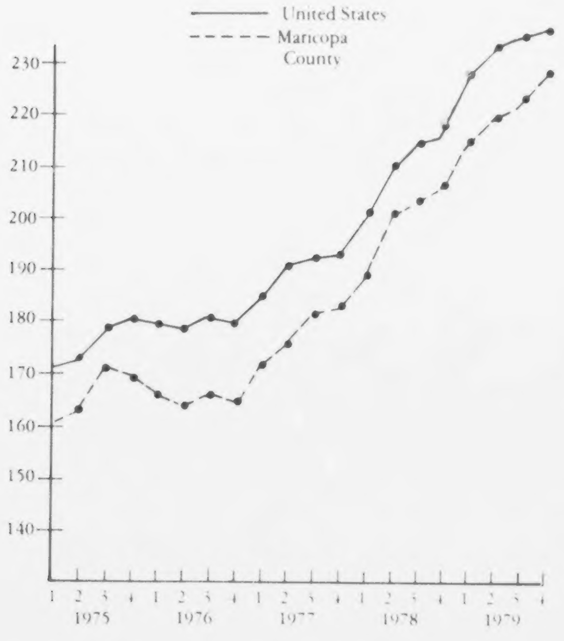
During 1979 the average food price index for Maricopa County rose 21 points from a 1978 value of 199.6 to an average value of 220.7, an increase of 10.6 percent. Some caution should be used, however, in the interpretation of such changes in the food price index. As one part of the Consumer Price Index (CPI), the food price index compares the cost of a *fixed* market basket of food items in a given period with the cost of purchasing the *same* market basket during a particular base period.(At present the index compares current prices with prices of food items in 1967.)[1] The composition of the specific market basket that is priced for the food price index is based upon a detailed survey of consumer expenditures by a sample of United States households during the 1972-1974 period.

Some consumers may purchase a much different selection of items than those included in the "typical" market basket. Depending upon what kinds of foods people buy, their food costs may have increased during

1979 by either more or less than the 10.6 percent increase identified by the Metropolitan Phoenix food price index. In fact, on a diet of pork, oranges, and margarine it would have been possible for a Phoenix area family to have spent less for food during 1979 than they did in 1978. In general, however, households' food costs increased substantially during the past year but probably somewhat less than 10.6 percent. This assertion is based upon the tendency of most consumers to adjust their shopping practices according to changes in relative prices — that is, to substitute lower-priced items for goods on which prices have risen rapidly.

Figure I graphically depicts the average quarterly change in the total food Price index for Maricopa County and the United States, indicating that local food prices are rising at a rate that is comparable to the United States as a whole.

FIGURE I
AVERAGE QUARTERLY INDEX
OF FOOD AT HOME
Maricopa County and
United States, 1975-1979
(1967 Average = 100 percent)



Source. Compiled from data published in *Arizona Business* Bureau of Business and Economic Research, College of Business Administration, Arizona State University

In addition to the *Total Food at Home* index, separate indexes are also compiled for five basic categories of food items — *Cereal and Bakery Products; Meats, Poultry, Fish, and Eggs; Dairy Products; Fruits and Vegetables;* and *Other Food.* The monthly indexes and percentage changes for each of the five food categories for Maricopa County are shown in Table 1, and in Figures II and III.

During 1979, substantial increases over the previous year were recorded for each of the individual categories. However, for only two of the five did prices rise faster last year than they did in 1978. Prices in the *Dairy Products* category showed the largest gain in 1979 — 14.8 percent — more than double the 6.4 percent increase recorded by prices in this food category in 1978. Average prices for every item in this category rose sharply during 1979 with prices of fresh nonwhole milk products and cheese leading the way. After jumping 19.8 percent in 1978, the index value for the *Meats, Poultry, Fish, and Eggs* category rose 13.8 percent in 1979. Continuing large increases in beef prices, along with jumps in the prices of fish and eggs, more than offset sharp declines in the prices of pork products during the year.

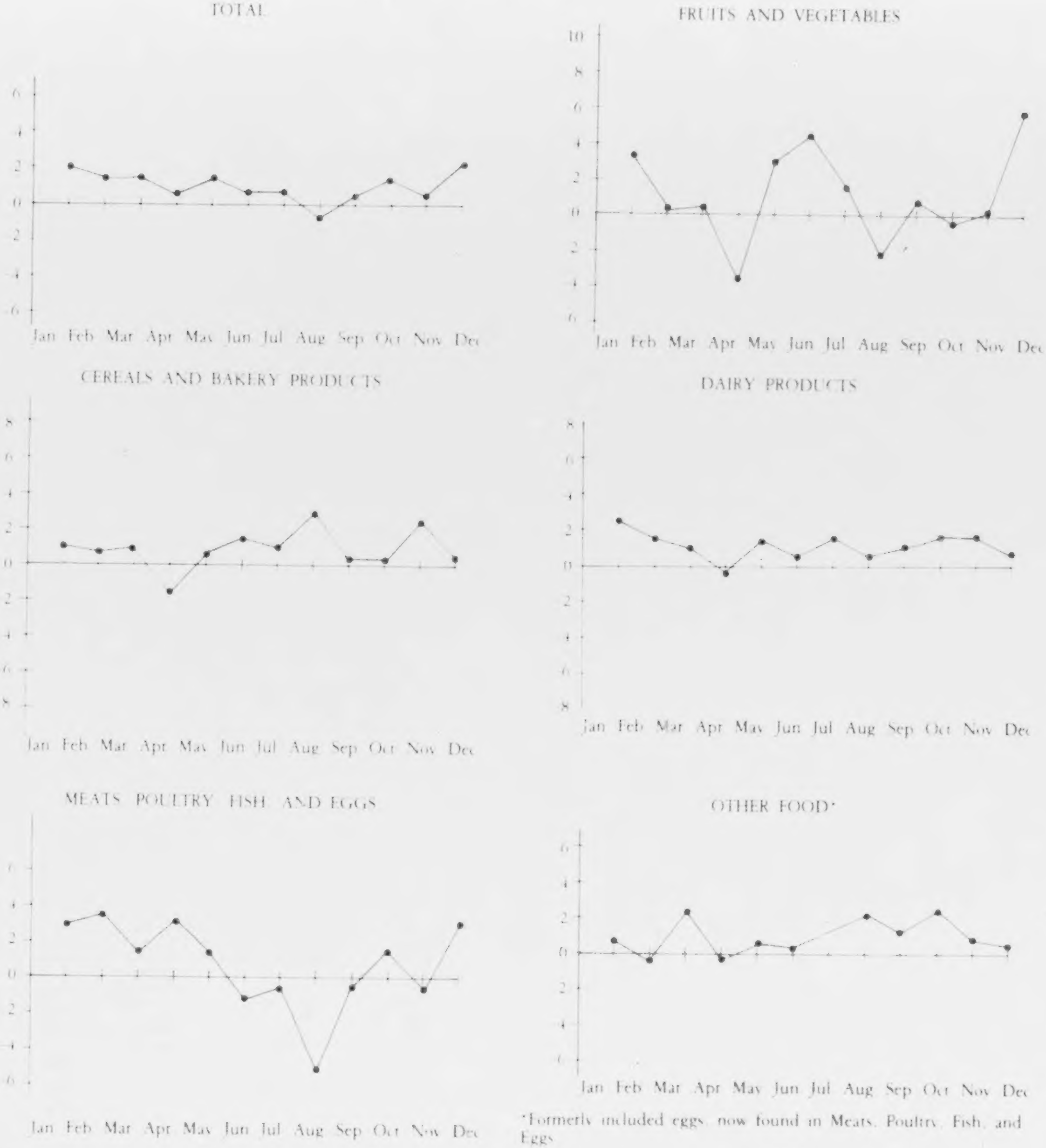
Prices of food items in the *Cereal and Bakery Products* categories increased 8.1 percent in 1979, which was a substantial improvement over the 11.6 percent rise recorded by that category's index in 1978. Similarly, the 1979 price experience for the *Fruits and Vegetables* category (7.9 percent) improved relative to the previous year's increase (13.7 percent). Moderate rises in the prices of frozen and canned fruits and vegetables compensated for big jumps in the average prices of many of the fresh fruits and vegetables during the past year. The best price performance for 1979 was recorded by the *Other Food* category — an average increase of 6.4 percent; unfortunately, this rise was almost twice as large as the 1978 change (only 3.4 percent). Higher prices for nonalcoholic beverages (coffee, tea, carbonated drinks) and snacks (nuts, chips, etc.) were the primary causes of the 1979 increase.

The data in Table 1 also point out that the seasonal pattern normally demonstrated by Phoenix food prices — big increases in the first half of the year followed by smaller rises in the last six months — also repeated itself in 1979. The *Total Food at Home* Index jumped 7.1 percent during the first six months, but it rose only 4.5 percent during the July-December period.

CAUSES OF THE 1979 PRICE INCREASES

At the beginning of 1979, U.S. Department of Agriculture economists forecast average increases of 8.5

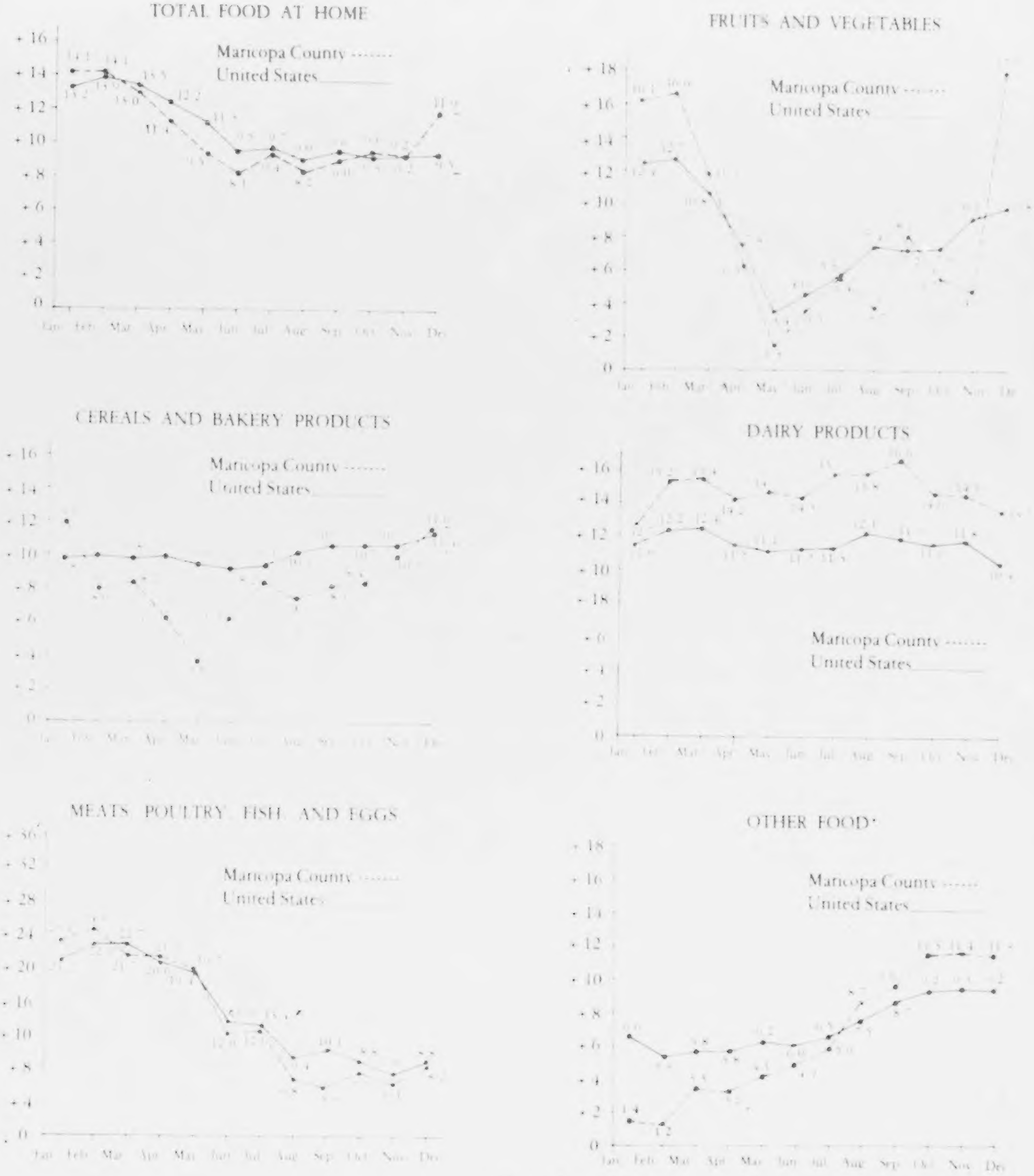
FIGURE II
INDEX OF FOOD AT HOME COSTS:
MONTHLY CHANGES IN MARICOPA COUNTY, 1979
(Average 1967 = 100 percent)



*Formerly included eggs, now found in Meats, Poultry, Fish, and Eggs

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University

FIGURE III
MARICOPA COUNTY AND U.S. FOOD PRICE INDEXES
1979 COMPARED WITH 1978 — MONTHLY CHANGES
(Average 1967 = 100 percent)



*Formerly included eggs, now found in Meats, Poultry, Fish and Eggs.

Sources: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University, and U.S. Department of Labor, Bureau of Labor Statistics, The Consumer Price Index.)

TABLE 1

1979 MONTHLY INDEX OF PERCENTAGE CHANGES IN MARICOPA COUNTY, FOOD COSTS

(1967 Average __ Base Period of 100)

	TOTAL		*CEREALS AND BAKERY PRODUCTS*		*MEATS, POULTRY, FISH AND EGGS*		*DAIRY PRODUCTS*		*FRUITS AND VEGETABLES*		*OTHER FOODS**	
Month (1979)	*Index*	*Percentage Change From Previous Month*	*Index*	*Percentage Change From Previous Month*	*Index*	*Percentage Change From Previous Month*	*Index*	*Percentage Change From Previous Month*	*Index*	*Percentage Change From Previous Month*	*Previous Index*	*Percentage Change From Previous Month*
January	211.2	+2.0	196.7	+1.0	230.2	+3.0	183.5	+2.4	196.1	+3.2	225.5	+0.6
February	213.9	+1.3	198.0	+0.7	238.4	+3.5	186.2	+1.5	196.6	+0.2	224.6	-0.4
March	216.8	+1.4	199.7	+0.9	241.6	+1.3	188.0	+1.0	197.4	+0.4	229.6	+2.2
April	217.0	+0.1	196.6	-1.6	249.2	+3.1	187.6	-0.2	190.0	-3.8	228.9	-0.3
May	219.8	+1.3	197.9	+0.7	252.5	+1.4	190.0	+1.3	195.8	+3.0	230.3	+0.6
June	221.3	+0.7	200.8	+1.4	250.0	-1.1	191.2	+0.6	204.6	+4.5	231.1	+0.3
July	222.8	+0.7	202.8	+1.0	247.8	-0.8	194.1	+1.5	207.9	+1.6	233.7	+1.1
August	220.9	-0.9	208.9	+3.0	235.2	-5.1	195.0	+0.5	203.1	-2.3	238.5	+2.1
September	221.8	+0.4	209.5	+0.3	233.8	-0.6	196.9	+1.0	204.7	+0.8	241.1	+1.1
October	225.0	+1.4	210.2	+0.3	237.6	+1.6	200.3	+1.7	204.0	-0.3	247.0	+2.4
November	226.3	+0.6	215.4	+2.5	236.0	-0.7	203.5	+1.6	204.3	+0.2	249.0	+0.8
December	231.3	+2.2	216.4	+0.5	243.2	+3.1	205.0	+0.7	218.4	+6.9	249.9	+0.4

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University

*Formerly included eggs, now found in meats, poultry, fish, and eggs

percent for U.S. food prices. However, they stated that if harsh winter weather in the Midwest continued, there was a potential for a 10 percent increase during 1979.[2] The severe weather did reduce the supplies of winter vegetables and citrus crops, pushing up prices, particularly during the first half of the year (10.5 percent in Phoenix during the January-June, 1979 period). In addition, reduced supplies of cattle led to sharply higher prices for beef in 1979. Beef production was high in the 1975-1978 period during the liquidation phase of the cattle cycle. In 1979, however, ranchers began rebuilding their herds, and as a result production was curtailed. The decline in beef production was partially offset by a cyclical increase in pork production, which allowed average pork prices to drop below their 1978 levels. Rising beef prices also strengthened the demand for substitute sources of protein, so that substantial price increases were also recorded for poultry, fish, and eggs during 1979.

On a nationwide basis, the U.S. Department of Agriculture (USDA) estimated that the average farm prices rose 11.4 percent during the past year and accounted for one-third of the total increase in the prices of food purchased for consumption at home. In addition, food marketing costs (including processing and distribution costs) increased 11.9 percent in 1979, accounting for over half of the total change in the cost of food at home. Prices of fish and imported food also rose 6.6 percent in 1979, which accounted for the remainder of the total food price increase.

The major factors leading to the big hike in farm marketing costs were higher labor, transportation, packaging, and energy costs in 1979. According to preliminary data, labor costs rose about 11 percent during the past year. Hourly earnings of food marketing employees grew at an annual rate of 8 percent in 1979, but the food industry has followed the economy-wide trend of declining labor productivity, so that unit labor costs increased substantially. Food packaging costs also rose sharply in 1979 — 12 percent — compared with 9 percent in 1978. Rising petroleum prices continued to push up the prices of plastic packaging materials; and prices of other commonly-used materials, such as paper products and tinplate, increased rapidly by 1979. Transportation costs jumped 14 percent last year. Railroad freight rates continued upward in 1979, and with diesel prices up 66 percent during the year, trucking rates also increased substantially.[3]

FOOD PRICE COMPARISONS

A comparison of Metropolitan Phoenix food price indexes with those of the United States, the Los Angeles-Long Beach area, and the Chicago-Northwestern Indiana area is presented in Table 2. Since price indexes are designed only to measure *changes* in prices over time, comparisons of the food indexes themselves among areas are not valid. That is, the absolute index values cannot be compared directly because the actual costs of purchasing the market basket of foods were not necessarily equal in the different areas in the base year of 1967 when each index was set at 100.0. However, comparisons of the trends in food prices over time and the year-to-year changes in food prices among these areas still provides valuable information for evaluating how Phoenix area consumers have fared relative to those in other parts of the nation.

In contrast to the previous two years, the 1979 average annual increase in the *Total Food at Home* Index for Phoenix 1979 compares favorably with those for the United States as a whole and for the two comparison metropolitan areas. The 10.6 percent rise for Phoenix was slightly less than the 10.8 percent increase recorded for the nation as a whole, substantially below the 11.4 percent change in Los Angeles food prices, and approximately equal to the rise in food prices during 1979 in the Chicago area (10.5 percent).

A look at the price increases for the five food groups does not produce a clear pattern when the Phoenix area statistics are compared with those of the other areas. In the *Cereals and Bakery Products* and *Other Food* categories, the Phoenix area had the smallest increases in average prices during 1979, while for the *Dairy Products* category Phoenix area prices rose more rapidly than did those in the United States or either of the comparison areas. In general, however, it appears that the price experience for the five food groups was consistent with the pattern discovered for the overall food price index; for a majority of the food groups, the 1979 increases in Phoenix food prices were smaller than those experienced in the nation as a whole and in the Los Angeles-Long Beach area, but larger than those recorded in the Chicago-Northwest Indiana area.

THE OUTLOOK FOR 1980

The rapid rise in food prices in the supermarket that occurred during the first halves of 1978 and 1979 is not

TABLE 2

1979 PERCENTAGE CHANGES IN FOOD PRICE INDEXES FOR MARICOPA COUNTY, THE UNITED STATES, AND SELECTED METROPOLITAN AREAS

(1967 Average = Base Period of 100)

Location	*Total Food Consumed at Home*	*Cereals and Bakery Products*	*Meats, Poultry, Fish, and Eggs*	*Dairy Products*	*Fruits and Vegetables*	*Other Foods**
Maricopa County						
Average 1979 Index Value	220.7	204.4	241.3	193.4	201.9	235.8
Average 1978 Index Value	199.6	189.0	212.1	168.5	187.1	221.7
1979 Percentage Change	+ 10.6	+ 8.1	+ 13.8	+ 14.8	+ 7.9	+ 6.4
United States						
Average 1979 Index Value	232.9	220.1	234.2	207.1	230.0	269.6
Average 1978 Index Value	210.2	199.9	204.3	185.6	212.9	251.5
1979 Percentage Change	+ 10.8	+ 10.1	+ 14.6	+ 11.6	+ 8.0	+ 7.2
Los Angeles-Long Beach						
Average 1979 Index Value	229.4	222.9	236.3	191.9	220.5	263.9
Average 1978 Index Value	206.0	202.2	204.6	169.8	205.3	244.3
1979 Percentage Change	+ 11.4	+ 10.2	+ 15.5	+ 13.0	+ 7.4	+ 8.0
Chicago-Northwestern Indiana						
Average 1979 Index Value	234.9	222.9	239.4	204.9	255.5	273.2
Average 1978 Index Value	212.6	202.7	212.0	181.5	220.2	252.7
1979 Percentage Change	+ 10.5	+ 10.0	+ 12.9	+ 12.9	+ 7.0	+ 8.1

Sources: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University; and U.S. Department of Labor, Bureau of Labor Statistics, The Consumer Price Index.

*Formerly included eggs, now found in meats, poultry, fish, and eggs.

expected to repeat itself in 1980. Ample supplies of meat and poultry will be available during the first half of 1980, large supplies of processed fruits and vegetables plus a sizable carryover of frozen orange juice concentrate should moderate the prices for fruits and vegetables, and a record soybean crop is expected to ease the price increases for fats and oils. Because of these favorable conditions, USDA economists predict that the farm value of foods sold at retail will increase only about 3 percent in 1980.[4]

Unfortunately, the impact of double-digit inflation in the rest of the economy and sharply higher energy costs are predicted to push farm marketing costs up sharply in 1980. These higher marketing costs will be the major cause of rising food costs during the year, with forecasts of an overall increase of 7 to 11 percent in retail food costs during 1980.[5]

The experience of the first two months of 1980 have certainly borne out the forecast by USDA economists of a leveling off of the inflation rate in retail food prices during 1980. The *Total Food at Home* index for the Phoenix metropolitan area rose only 0.2 percent in January and actually decreased 0.6 percent in February. The overall inflation rate is not predicted to abate significantly in 1980, but early evidence suggests that the annual increase in retail food prices might be one of the relatively bright spots in an otherwise gloomy inflation picture for the coming year.[6]

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[1] An explanation of food price index calculations can be found in Jerry L. Kingston, "Maricopa County Food Costs: The 1970 Record," *Arizona Business*, 18 (April, 1971): 8. For a discussion of the revisions to this methodology incorporated into the index in January, 1979, see page 5 of this issue.

[2] U.S. Department of Agriculture, *National Food Review*, Winter 1979, p. 2.

[3] Idem *Agricultural Outlook*, January-February, 1980, pp. 5-6.

[4] Ibid, p. 2.

[5] Ibid.

[6] The work of Daniel Freeman, David Jones, Bill McDonald, Margaret Schulman, Carol Sullivan, Judith Thompson, and Bonnie Wilson in the process of revising the index's methodology and/or in compiling the index during the 1979 is gratefully acknowledged.

Construction Activity: 1979

JAY Q. BUTLER

Construction activity during 1979 equaled or exceeded the levels achieved during 1978. The expected decline in construction activity did not really materialize. However, unlike 1978, the single-family segment was not dominant, as the commercial and industrial sectors showed strong levels of activity during 1979. (See the 1979 Year-end Report on pages 22-24.)

Although 1979 can be viewed as a good construction year, increasing interest rates, continuing inflation, and eroding consumer confidence have continually cast a pall over the industry. These factors did not create a definite slowdown, but they are expected to affect the level of construction activity in all sectors during 1980.

SECTORAL CHANGES

Table 1 provides a perspective on the trends and changes in construction activity for the 1970s. Even though construction activity in Maricopa County for 1979 was good, the rest of the state, especially Pima County, outperformed Maricopa County. In 1979, Maricopa County had an 8 percent decrease in total issued permits (65,364 to 59,963 issued permits), but total dollar value remained virtually unchanged at $1,623,552,388 in 1979 versus $1,627,188,305 in 1978. For the rest of the state, issued permits increased 9 percent (43,374 to 47,280 issued permits), while total dollar value increased 30 percent from $762,745,332 to $997,359,998. Although inflation accounts for some of this increase, other factors also enter, such as increased activity and larger scale projects — manufacturing plants, high-rise office structures, and larger shopping centers.

In 1978, Maricopa County accounted for 60 percent of the permits issued in Arizona and 68 percent of total dollar value, while for 1979 these percentages declined to 56 percent of issued permits and 62 percent of total dollar value. On the other hand, construction activity for 1978 in Pima County represented 17 percent of total issued permits and 16 percent of total dollar value; but its representative share increased in 1979 to 19 percent of total permits issued in the state and 21 percent of the total dollar value. Although Maricopa County is still the dominant element of Arizona construction activity, other areas of the state are beginning to increase their share of the construction activity.

Residential

Generally, the residential sector is the most important element of construction activity; it is, however, very sensitive to the national and local economic climate. In the growing economy of 1978, residential

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In spite of a slowdown in construction of single-family dwellings, the construction picture for 1979 in Arizona looked good, particularly with respect to the industrial sector. However, continuing inflation and high interest rates may present greater challenges to the construction industry in 1980.

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TABLE 1

ARIZONA BUILDING PERMIT ACTIVITY: 1970-1979

		RESIDENTIAL[2]		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
		Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
1970	Maricopa County[1]	20,844	210,882,437	2,475	141,850,399	201	16,304,498	16,095	60,962,865	39,615	430,000,199
1971	Maricopa County[1]	29,587	339,793,152	3,107	202,999,014	189	15,431,130	17,664	92,191,196	50,547	650,414,492
1972	Maricopa County[1]	30,934	377,767,808	2,952	311,791,705	277	24,151,743	19,674	107,262,400	53,837	820,973,656
1973	Maricopa County[1]	26,901	362,539,281	2,958	299,527,941	348	28,351,732	20,109	123,780,631	50,316	814,199,585
1974	Maricopa County	19,784	250,799,926	2,748	280,704,137	358	34,647,097	13,974	113,696,044	36,867	679,847,204
	Rest of State	21,862	206,997,678	2,902	108,696,072	127	6,632,880	4,960	535,552,926	29,848	857,879,546
	Arizona Total	41,646	457,797,604	5,650	389,400,209	458	41,279,967	18,934	649,248,970	66,715	1,537,726,750
1975	Maricopa County	18,013	212,970,324	2,232	121,625,098	315	30,081,198	12,944	119,193,098	33,554	483,869,718
	Rest of State	18,800	193,658,097	2,646	99,972,942	83	13,075,676	6,753	50,664,747	28,342	337,371,462
	Arizona Total	36,893	406,628,421	4,878	201,598,040	398	43,156,874	19,727	169,857,845	61,896	821,241,180
1976	Maricopa County	21,035	282,481,469	2,295	134,722,307	272	30,822,901	14,053	141,733,842	37,655	589,759,709
	Rest of State	20,386	262,032,663	2,163	98,709,157	93	8,573,851	7,309	35,098,763	29,850	404,415,244
	Arizona Total	41,421	544,514,132	4,458	233,431,464	365	39,396,752	21,261	176,832,605	67,505	994,174,953
1977	Maricopa County	33,749	748,006,700	1,283	151,208,456	301	38,117,445	17,021	163,953,503	52,534	1,101,286,104
	Rest of State	22,206	348,338,254	1,443	133,386,688	86	4,899,324	12,062	88,475,185	35,617	575,099,451
	Arizona Total	55,955	1,096,344,954	2,726	284,595,144	387	43,016,769	29,083	252,428,688	88,151	1,676,385,555
1978	Maricopa County	41,032	997,049,216	1,925	374,012,358	436	49,953,361	21,971	206,173,370	65,364	1,627,188,305
	Rest of State	30,460	485,438,519	1,397	168,205,926	86	27,135,259	11,425	81,865,628	43,374	762,745,332
	Arizona Total	71,492	1,482,487,735	3,322	542,218,284	522	77,088,620	33,396	288,038,998	108,738	2,389,933,637
1979	Maricopa County	32,990	751,562,454	2,207	464,555,779	512	128,181,526	24,254	279,252,629	59,963	1,623,552,388
	Rest of State	35,589	577,361,848	1,500	261,671,200	89	50,262,985	10,096	108,063,965	47,280	997,359,998
	Arizona Total	68,579	1,328,924,302	3,707	726,226,979	601	178,444,511	34,350	387,316,594	107,243	2,620,912,386

[1] Only Maricopa County was surveyed before 1974.

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

construction accounted for 61 percent of the total dollar value of permits recorded in Maricopa County and represented a similar 62 percent for the rest of Arizona. In the stagnant economy of 1979, residential construction in Maricopa County accounted for only 46 percent of total dollar value and 58 percent of total dollar value for the rest of the state. Furthermore, single-family permits issued in Maricopa County represent 73 percent of the residential sector, compared to 80 percent in 1978 and 57 percent for the rest of the state, versus 60 percent in 1978.

When the economy begins to decline, new housing starts, as a percentage of the residential sector, will also begin to decline while permits for remodeling and home improvements will increase. Consumers will tend to modify their current residences instead of purchasing new homes, which they perceive as being either too expensive or not available.

In 1979, 44,542 permits were issued in Arizona for the construction of new single-family dwellings compared to 51,104 single-family permits for 1978. Although this represents a 13 percent decrease in permit activity, much of the decrease occurred in Maricopa County where single-family permits declined 27 percent from 32,962 to 24,128. For the rest of the state, single-family permits increased 13 percent from 18,142 to 20,414. As an example, single-family permits in Pima County increased 14 percent (8,400 to 9,543) and for Coconino County, the increase was 28 percent (881 to 1,108). This activity can be accounted for by the continued growth of certain geographical areas in the state, but a decrease in market activity can be expected as the general economic conditions affect these areas, as in Maricopa County.

Commercial

This section contains a diverse set of real estate sectors such as apartments of more than three units, office buildings, shopping centers, and motels. As might be expected in an inflationary economy, the dollar value of issued permits reached record levels for both the state and Maricopa County, but the number of issued permits remained well below the levels achieved in the early years of this decade (Table 1).

In the early part of this decade, apartment development was the dominant portion of this sector. This was particularly true in 1972 when 716 permits were issued in Maricopa County for apartments of five or more units and 581 permits were issued for three-to-four unit complexes. In 1979, 518 permits were issued in Maricopa County for the five-or-more-unit complexes, up from the 441 permits in 1978; and 270 permits were issued for three-to-four-unit complexes. Although the vacancy rates for apartments remained in the 2 to 4 percent range, there has been little incentive to return to the construction levels of the early 1970s. The problems confronted by this sector include limited economic return, increasing operating costs, and the specter of rent control. These problems have contributed to an increasing number of condominium conversions in Maricopa County. Conversion has been of great concern to many groups, but at this time, very little objective evidence exists concerning the impact of conversion on the rental market and supply of low-cost housing. For the rest of the state, the number of multiunit permits increased slightly from 103 to 108; 76 of those were issued in Pima County.

Shopping center and office development were very evident during 1979. Shopping centers were constructed in response to the extensive residential development of 1978 to supply nearby retail activity. Office buildings increased in Pima and Maricopa Counties in response to their expanding economic bases.

Industrial

Industrial development in Maricopa and Pima Counties was phenomenal in 1979. In Maricopa County, the number of issued permits increased 17 percent from 436 to 512, but dollar value increased 157 percent from $50 million to $128 million. This reflects the continuing growth of the industrial base with the addition of new firms and the expansion of existing firms. Most of these firms are in growth industries such as electronics and computers. The development of this industrial base is important to Maricopa County for it supplies an increasing number of jobs for the people moving to the area and provides a solid base for the continued economic growth of Maricopa County.

For the rest of Arizona, the number of permits remained virtually unchanged at 89 (86 permits in 1978), but dollar value increased 85 percent ($27 million to $50 million). Much of this activity occurred in Pima County where permits increased from 13 to 28, and dollar value increased from $20 million to $43 million. Industrial activity throughout the state is important for the stable economic growth of Arizona.

Other

This sector includes construction permits for things such as public buildings, fences, and swimming pools, as well as permit renewals. This sector is very sensitive to governmental activity, which is very important in providing construction jobs and projects in a weakening economy. Thus, the government construction projects provide some stability for the Arizona construction industry. In Maricopa County, issued permits increased 10 percent (21,971 to 24,254 permits), while dollar value increased 35 percent from $21 million to $28 million. The rest of the state showed a decline of 12 percent in issued permits but a 32 percent increase in dollar value.

OUTLOOK FOR 1980

At this time last year, most forecasters were predicting that 1979 would not be a good year and that a recession would occur. The recession did not materialize in 1979, and total construction activity achieved a good level of performance. However, 1979 harbored certain events and trends that could have an adverse impact on construction activity in 1980.

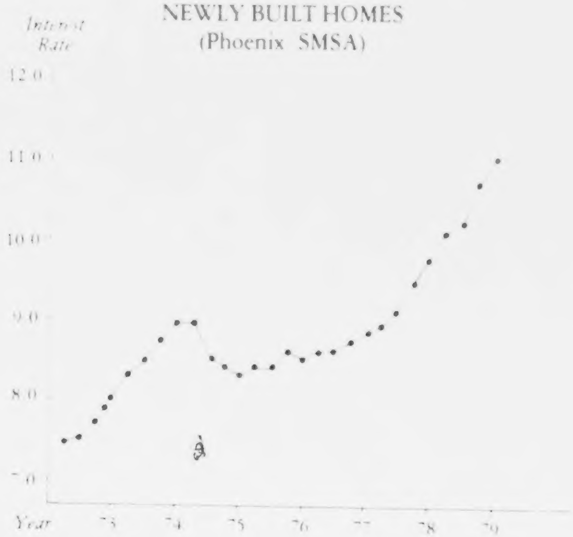
The main key to understanding future construction performance is the policy of the Federal Reserve Board relative to the continuing high rates of inflation. In October, 1979, the Federal Reserve instituted a strict credit policy, which resulted in an across-the-board increase in all interest rates. Because the inflation rate continued to increase, the Federal Reserve Board furthered its policy in February by increasing the discount rate from 12 percent to 13 percent. The expected result of this decision is another increase in interest rates. Because financing is important in acquiring and developing real estate, increasing interest costs will have a detrimental impact on all sectors of construction activity during 1980.

Residential Market of 1980

This impact will be especially evident in the residential sector. Figures I and II graphically portray the increasing cost of housing in Maricopa County from 1973 through 1979. In 1973, the average rate on a conventional mortgage was 7½ percent and the average purchase price of a conventionally financed new home was $34,000. By 1979, the average interest rate of a conventional mortgage had risen to 10½ percent and the average purchase price of a new home was up to

$80,000. Assuming a loan-to-value ratio of 75 percent and a term of 30 years, the monthly payment (principal and interest) in 1973 was $180 while by 1979 the monthly payment had increased to $549. People were able to afford new homes in record numbers during the later years of 1970 because (1) federal laws required the wife's income to be fully considered when making a mortgage, (2) households were willing to pay a greater proportion of their income for housing, and (3) homes came to be viewed as a good investment that appreciates quickly and greatly.

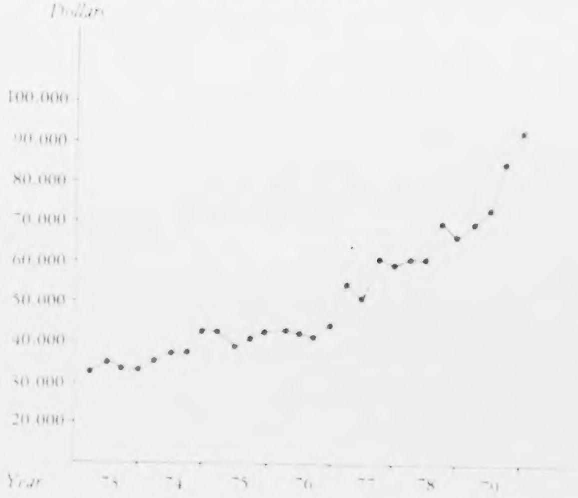
FIGURE I
AVERAGE CONVENTIONAL CONTRACT INTEREST RATE
NEWLY BUILT HOMES
(Phoenix SMSA)



Source: Mortgage Interest Rate Survey, Federal Home Loan Bank Board, January, 1980

It is unrealistic to expect consumers to continue their purchasing patterns of 1978 and 1979. There are no new major sources of household income, and the savings rate (3.3 percent of disposable income in fourth quarter of 1979[2]) may be reaching unsustainably low levels. People have been willing to decrease savings and increase debt because of the continued appreciation of their homes, which acts as a form of savings. Furthermore, they believe that their income will be able to support their home purchase. For 1979, wages and salaries rose 8.7 percent, but consumer prices rose 13 percent.[3] If either one or both of these perceptions should change, the consumer could be expected to withdraw from the market.

FIGURE II
AVERAGE PURCHASE PRICE
CONVENTIONALLY FINANCED NEW HOMES
(Phoenix SMSA)



Source: Mortgage Interest Rate Survey, Federal Home Loan Bank Board, January, 1980

Financing Problems

Continuing inflation and the actions of the Federal Reserve Board are expected to result in further increases in interest. At the time of this writing, the prime interest rate was 19 percent and expected to go above 20 percent. Conventional mortgage rates in Maricopa and Pima Counties were above 13 percent with one lender stating a rate of 14 percent. It is possible that if the current strict credit policy is maintained, interest rates will rise above 15 percent as they have in California. The FHA/VA rate was recently raised to 13 percent. Because of the increasing costs of the home purchase and the eroding effect of inflation on household incomes, the home buying consumer is expected to be very cautious during 1980.

New increasing interest rates will also adversely affect the commercial and industrial sectors. Rents have not escalated as fast as interest rates; thus, it is increasingly difficult to supply profitable commercial and industrial structures. Due to the growth of Arizona and Maricopa County, these sectors, with the exception of apartment development, should not be as adversely affected as the residential sector.

Besides the increased cost of borrowing money, interest rates that lenders must pay to depositors have also increased. Nevertheless, because of the low savings rate, lending institutions are having difficulty in attracting deposit funds. Furthermore, the money that is being deposited is costing the financial institutions above 14 percent for the 26-week money market certificates and above 12 percent for the new 2½ year certificates. For 1980, liquidity and availability of loanable funds will continue to be a source of lender problems.

In order to meet the financing needs of the real estate industry, innovative approaches that build on the foundation of the 1970s will need to be of primary concern during the 1980s. Nonstandard mortgages should become more important as lenders continue to search for ways to place their funds profitably in an inflationary environment. These mortgage instruments include a greater usage of variable rate mortgages (VRM), graduated payment mortgages (GPM) and the flexible loan insurance program (FLIP). Furthermore, lenders will use the secondary mortgage markets and pass-through securities to generate their needed liquidity and receive a rate of return to cover overhead and other operational costs by servicing their mortgages.[4] Thus, it is going to require innovation and sophistication to deliver financing to users in all sectors at affordable prices and terms.

Economic Environment

With inflation as the primary concern for the real estate industry, an important question is, How long will the current levels of inflation continue? The anticipated recession, which was expected to cool off the economy, did not occur. Due to the current international situation, the proposed federal budget has increased amounts to be spent for military equipment, and some economists believe that these increased expenditures may mean that the expected recession may not occur or at least will be very mild. Because of the increased expenditures, the federal government will have to increase borrowing resulting in a continued inflationary effect on the economy. Thus, the Federal Reserve Board will be confronted with the two-edged sword of bringing down inflation while allowing the economy to expand enough to provide for the needed military expenditures. The way this problem is handled during 1980 will have much to do with the strength and health of the economy.

Regardless of the final outcome, it appears that interest rates on all instruments will go up or at least maintain their current levels during 1980. The proposed expenditures will greatly benefit certain industries such as aerospace and electronics with the result that the national economy is expected to begin growing during latter 1980. However, the high cost of financing may make it highly possible that the nation's construction and real estate industry will not fully participate in a growing economy.

Nevertheless, because the aerospace and electronic industries are such an integral part of Arizona, the local economy is expected to grow and with this economic growth, there will be increasing opportunities to supply new homes, shopping areas, and work centers. However, this growth will be taking place in an era of limited and expensive resources of financing and energy. Thus, the real estate and construction industries will be challenged to profitably supply the needs of a growing state. This will require innovative approaches to land use development, construction methods, building design, financing, and organizational structure.[5] Success in the 1980s will come to those organizations and institutions that adapt to a very complex and changing environment.

At this time it is too early to assess the impact of the anti-inflation program announced recently by President Carter. Because it tends to reinforce the strict credit policy of the Federal Reserve, the expectations are that credit funds will become more scarce and even more expensive. Thus, if the full program is implemented, construction activity could be expected to be very slow during 1980 throughout the United States.

Although the continued growth of Arizona will provide a broad impetus for the construction industry, there will be many challenges to fulfill the needs of the marketplace. For 1980, construction activity will be definitely down from 1979, but some signs of recovery should become apparent by the end of 1980.

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[1] *News*, Federal Home Bank Board.

[2] "Business Outlook," *Business Week*, February 25, 1980.

[3] "Wages, Salaries Jumped by 2.4% in Fourth Period," *Wall Street Journal*, February 29, 1980.

[4] Roger P. Sindt, "Innovations for an Inflationary Economy," *The Guarantor*, Nov./Dec. 1979.

[5] See Jay Q. Butler, "Twenty-Five Years of Real Estate Progress," *Arizona Business* 27 (February, 1980): 9-15.

Arizona Building Permits: Annual Report

CENSUS DIVISION	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
APACHE COUNTY	202	3,462,363	23	819,800	1	89,000	16	208,625	242	4,579,788
Eagar	65	2,178,139	6	724,800	—	—	6	198,000	77	3,100,939
St. Johns	52	N/C	3	N/C	—	—	2	N/C	57	N/C
Springerville	18	N/C	7	N/C	—	—	1	N/C	26	N/C
Unincorporated Apache County	67	1,284,224	7	95,000	1	89,000	7	10,625	82	1,478,849
COCHISE COUNTY	1,868	31,660,041	68	6,441,208	8	743,600	1,139	6,030,827	3,083	44,875,676
Benson	78	810,600	1	5,000	1	10,000	56	159,323	136	984,923
Bisbee	329	547,556	3	76,000	—	—	45	509,841	377	1,133,397
Douglas	217	2,530,777	4	56,450	—	—	165	2,221,676	386	4,808,903
Huachuca City	52	70,381	—	—	—	—	17	41,156	69	111,537
Sierra Vista	621	13,711,753	16	2,520,360	—	—	674	1,462,409	1,311	17,694,522
Tombstone	10	199,820	1	25,000	—	—	1	110,000	12	334,820
Unincorporated Cochise County	505	13,313,029	36	2,560,398	4	720,000	141	1,423,481	686	18,016,908
Willcox	56	476,125	7	1,198,000	3	13,600	40	102,941	106	1,790,666
COCONINO COUNTY	1530	39,568,341	170	21,301,184	7	810,875	471	4,334,070	2,178	66,014,470
Flagstaff	464	19,905,091	141	18,453,282	5	719,000	241	2,566,057	851	41,643,430
Fredonia	6	115,000	—	—	1	2,000	15	8,844	22	125,844
Page	104	2,225,520	2	1,120,000	—	—	15	18,650	121	3,364,170
Unincorporated Coconino County	931	17,152,188	25	1,723,902	1	89,875	142	940,279	1,099	19,906,244
Williams	25	170,542	2	4,000	—	—	58	800,240	85	974,782
GILA COUNTY	993	12,321,936	35	1,316,185	1	25,000	326	2,360,543	1,355	16,023,664
Globe	100	1,354,876	15	592,532	—	—	21	113,909	136	2,061,317
Hayden	21	43,801	—	—	—	—	6	7,311	27	51,112
Miami	45	272,860	—	—	—	—	9	141,196	54	414,056
Payson	308	2,771,656	13	512,703	—	—	190	576,213	511	3,860,572
Unincorporated Gila County	519	7,878,743	7	210,950	1	25,000	100	1,521,914	627	9,636,607
GRAHAM COUNTY	545	6,827,806	46	3,381,369	—	—	51	4,463,430	642	14,672,605
Pima	34	536,955	—	—	—	—	2	232,800	36	769,755
Safford	183	1,819,080	29	2,764,869	—	—	39	4,115,330	251	8,699,279
Thatcher	103	1,334,650	—	—	—	—	5	17,800	108	1,352,450
Unincorporated Graham County	225	3,137,121	17	616,500	—	—	5	97,500	247	3,851,121
GREENLEE COUNTY	19	399,672	2	23,000	—	—	3	105,002	24	527,674
Clifton	2	46	—	—	—	—	2	5,000	4	5,046
Duncan	2	66,000	2	23,000	—	—	1	100,002	5	189,002
Unincorporated Greenlee County	15	333,626	—	—	—	—	—	—	15	333,626
MARICOPA COUNTY	32,990	751,562,454	2,207	464,555,779	512	128,181,526	24,254	279,252,629	59,963	1,623,552,388
Avondale	25	432,116	17	1,725,600	—	—	109	276,079	151	2,433,795
Buckeye	33	421,700	5	420,000	—	—	42	334,041	80	1,175,741
Chandler	1,837	28,956,079	32	1,343,294	17	14,902,578	1,434	3,410,641	3,320	48,612,592
El Mirage	1	3,500	—	—	—	—	1	151,000	2	154,500
Gila Bend	14	248,900	—	—	—	—	7	7,100	21	256,000
Gilbert	244	5,634,839	8	14,260	8	119,987	166	567,889	426	6,336,975
Glendale	2,073	48,206,191	188	12,453,000	10	917,300	3,106	16,635,999	5,377	78,212,490
Goodyear	13	436,835	3	290,000	2	47,500	151	811,871	169	1,586,206
Guadalupe	30	237,072	1	500	—	—	2	14,520	33	252,092
Mesa	3,467	54,654,035	281	88,013,829	25	6,047,439	3,682	52,389,066	7,455	201,104,369
Paradise Valley	140	10,135,581	2	134,000	—	—	420	3,363,514	562	13,633,095
Peoria	402	7,366,231	18	1,333,559	6	76,600	363	2,281,462	789	11,057,852
Phoenix	11,097	278,115,066	840	265,387,088	203	68,446,472	9,880	154,358,536	22,020	766,307,162
Scottsdale	2,306	75,385,594	196	42,280,395	—	—	3,400	16,640,927	5,902	134,306,916
Surprise	32	91,900	2	16,500	—	—	41	75,150	75	183,550
Tempe	1,854	32,797,000	246	28,366,000	241	37,623,650	740	13,603,760	3,081	112,390,410
Tolleson	82	971,807		528,000	—	—	66	98,087	151	1,597,894
Unincorporated Maricopa County	9,016	205,852,706	357	19,876,719	—	—	554	11,792,870	9,927	237,522,295
Wickenburg	77	971,807	4	922,537	—	—	26	2,298,978	107	4,193,484
Youngtown	247	643,333	4	1,450,498	—	—	64	141,139	315	2,234,970

Arizona Building Permits: Annual Report (Continued)

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
MOHAVE COUNTY	6,964	71,917,203	227	21,580,675	2	211,536	752	3,134,167	7,945	96,843,581
Kingman City	317	3,531,515	50	4,664,673	—	—	210	725,988	577	8,922,176
Kingman Area	954	6,352,294	19	2,969,271	—	—	40	59,694	1,013	9,381,259
Lake Havasu City	1,701	32,701,687	72	8,154,204	1	193,536	253	1,792,550	2,027	42,841,977
Lake Havasu Area	354	2,462,398	2	39,640	—	—	18	29,900	374	2,531,938
Mohave Valley North	2,153	16,294,263	44	4,692,602	—	—	172	332,300	2,369	21,319,165
Mohave Valley South	985	6,654,221	26	773,461	—	—	31	123,715	1,042	7,551,397
Dolan Springs	209	1,270,375	5	91,920	1	18,000	12	7,188	227	1,387,483
Sacramento Valley	219	1,623,129	8	193,368	—	—	11	6,120	238	1,822,617
Mohave County General	72	1,027,321	1	1,536	—	—	5	56,712	78	1,085,569
NAVAJO COUNTY	1,243	23,591,870	72	2,265,449	—	—	608	265,197	1,923	26,122,516
Holbrook	55	1,106,660	9	415,100	—	—	6	73,000	70	1,594,760
Show Low	110	1,532,602	8	335,719	—	—	577	80,319	695	1,948,640
Snowflake	46	N/C	4	N/C	—	—	—	—	50	N/C
Taylor	35	1,064,000	1	N/C	—	—	7	12,700	43	1,076,700
Unincorporated Navajo County	880	18,197,541	43	1,369,130	—	—	6	67,988	929	19,634,659
Winslow	117	1,691,067	7	145,500	—	—	12	31,190	136	1,867,757
PIMA COUNTY	15,732	271,010,555	558	172,664,523	28	43,488,616	4,646	66,158,396	20,964	553,322,090
Marana	4	N/C	1	N/C	—	—	4	N/C	9	N/C
Oro Valley	67	1,549,637	1	850	—	—	4	405,320	72	1,955,807
South Tucson	103	607,898	52	605,580	1	157,472	37	20,765	193	1,391,715
Tucson	3,497	62,792,192	322	101,151,161	18	12,322,344	3,033	51,964,684	6,870	228,230,381
Unincorporated Pima County	12,061	206,060,828	182	70,906,932	9	31,008,800	1,568	13,767,627	13,820	321,744,187
PINAL COUNTY	1,470	15,204,181	69	3,342,475	5	2,978,528	535	1,898,504	2,079	23,423,688
Casa Grande	148	1,876,210	8	426,820	3	2,692,000	58	264,900	217	5,259,930
Coolidge	199	472,784	6	48,950	—	—	64	41,806	269	563,540
Eloy	44	306,716	2	368,805	1	13,088	32	58,668	79	747,277
Florence	34	410,487	1	85,000	—	—	42	206,231	77	701,718
Kearny	37	96,821	2	27,000	—	—	10	333,800	49	457,621
Mammoth	7	5	—	—	—	—	—	—	7	5
Superior	24	175,410	—	—	—	—	3	1,050	27	176,460
Unincorporated Pinal County	977	11,865,748	50	2,385,900	1	273,440	326	992,049	1,354	15,517,137
SANTA CRUZ COUNTY	290	9,026,253	8	237,500	4	825,000	67	535,481	369	10,624,234
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	16	141,286	1	17,500	—	—	2	5,181	19	163,967
Unincorporated Santa Cruz County	274	8,884,967	7	220,000	4	825,000	65	530,300	350	10,460,267
YAVAPAI COUNTY	2,863	59,657,339	111	15,710,112	14	413,440	875	3,646,792	3,863	79,427,683
Chino Valley	108	1,679,691	5	58,300	1	20,000	35	183,490	149	1,941,481
Clarkdale	47	700,170	3	98,000	2	62,000	16	24,090	68	884,260
Cottonwood	190	1,919,838	17	4,882,000	6	109,000	46	177,159	259	7,087,997
Jerome	11	85,000	3	4,000	—	—	7	9,200	21	98,200
Prescott	560	7,087,633	32	8,223,772	3	167,440	532	1,530,890	1,127	17,009,735
Unincorporated Yavapai County	1,947	48,185,007	51	2,444,040	2	55,000	239	1,721,963	2,239	52,406,010
YUMA COUNTY	1,870	32,714,288	111	12,587,720	19	677,390	607	14,922,931	2,607	60,902,329
Parker	35	742,745	7	1,052,784	3	41,081	25	207,105	70	2,043,715
Somerton	27	700,860	3	1,204,316	—	—	17	13,212	47	1,918,328
Unincorporated Yuma County	1,052	16,743,247	47	3,648,755	16	636,309	212	2,330,054	1,327	23,358,365
Wellton	6	108,000	—	—	—	—	—	—	6	108,000
Yuma	750	14,419,496	54	6,681,865	—	—	353	12,372,560	1,157	33,473,921
TOTAL Maricopa County, Year 1979	32,990	751,562,454	2,207	464,555,779	512	128,181,526	24,254	279,252,629	59,963	1,623,552,388
TOTAL Maricopa County Year 1978	41,032	997,049,216	1,925	374,012,358	436	49,953,361	21,971	206,173,370	65,364	1,627,188,305
PERCENT CHANGE	-20	-25	15	24	17	157	10	35	-8	-0
TOTAL Arizona, Year 1979	68,579	1,328,924,302	3,707	762,226,979	601	178,444,511	34,350	387,316,594	107,243	2,620,912,386
TOTAL Arizona, Year 1978	71,492	1,482,487,735	3,322	542,218,284	522	77,088,620	33,396	288,038,998	108,738	2,389,833,637
PERCENT CHANGE	-4	-10	12	34	15	131	3	34	-1	10

N/C: Not collected.
*Includes mobile homes.

N/R: No report, data for this month will be combined with data reported for the following month.

Arizona New Housing Starts: Annual Report

YEARLY, 1979

BUILDING PERMITS ISSUED

CENSUS DIVISION	1* Family	Duplex	3-4 Families	5 or More	Housing Units
APACHE COUNTY	179	2	2	—	187
Eagar	63	—	—	—	63
St. Johns	43	—	—	—	43
Springerville	11	—	2	—	19
Uninc. Apache Co.	62		—	—	62
COCHISE COUNTY	917	—	3	—	928
Benson	38	—	—	—	38
Bisbee	—	—	—	—	—
Douglas	41	—	—	—	41
Huachuca City	1	—	—	—	1
Sierra Vista	372		—	—	372
Tombstone	8	—	1	—	12
Uninc. Cochise Co.	445	—	2	—	452
Willcox	12	—	—	—	12
COCONINO COUNTY	1,108	5	7	4	1,275
Flagstaff	355	5	6	—	384
Fredonia	4	—	—		4
Page	59	—	—	1	107
Uninc. Coconino Co.	687	—	1	2	752
Williams	3	—	—	1	28
GILA COUNTY	607	5	9	—	651
Globe	40	5	8		76
Hayden	1	—	—	—	1
Miami	1	—	—	—	1
Payson	196	2	1	—	204
Uninc. Gila Co.	369	—	—		369
GRAHAM COUNTY	271	1	—	1	333
Pima	29	—			29
Safford	57		—	1	117
Thatcher	31	1		—	33
Uninc. Graham Co.	154		—		154
GREENLEE COUNTY	14	—	—	—	14
Clifton	—	—	—	—	—
Duncan	1		—	—	1
Uninc. Greenlee Co.	13			—	13
MARICOPA COUNTY	24,128	174	270	518	38,239
Avondale	18	1	6	7	88
Buckeye	12	—	3	—	24
Chandler	1,608	25	13	2	1,715
El Mirage	—	—	—	—	—
Gila Bend	10	2	—	—	14
Gilbert	166	—	—	—	166
Glendale	1,412	—	9	16	1,620
Goodyear	9	—	—	—	9
Guadalupe	17	—	—	—	17
Mesa	2,987	58	71	62	5,988
Paradise Valley	92	—	—	—	92
Peoria	239	27	—	—	293
Phoenix	7,630	33	124	231	15,530
Scottsdale	1,682	—	2	82	2,743
Surprise	6	1	—	—	8
Tempe	1,045	20	10	91	2,066
Tolleson	37	—	—	1	42
Uninc. Maricopa Co.	7,121	2	31	22	7,725
Wickenburg	24	3	1	1	58
Youngtown	13	2	—	3	41
MOHAVE COUNTY	2,737	14	5	9	2,921
Kingman City	174	—	—	—	174
Kingman Area	340	1	—	—	342
Lake Havasu City	961	8	5	8	1,125
Lake Havasu Area	130	—	—	—	130
Mohave Valley North	655	5	—	1	671
Mohave Valley South	297	—	—	—	297
Dolan Springs	61	—	—	—	61
Sacramento Valley	84	—	—	—	84
Mohave County General	37	—	—	—	37
NAVAJO COUNTY	781	5	—	—	791
Holbrook	20	—	—	—	20
Show Low	94	—	—	—	94
Snowflake	42	—	—	—	42
Taylor	25	—	—	—	25
Uninc. Navajo Co.	557	5	—	—	567
Winslow	43	—	—	—	43
PIMA COUNTY	9,543	103	47	76	13,574
Marana	3	—	—	—	3
Oro Valley	19	—	—	—	19
South Tucson	16	1	—	2	30
Tucson	1,682	98	35	58	4,833
Uninc. Pima Co.	7,823	4	12	16	8,689
PINAL COUNTY	930	6	9	2	988
Casa Grande	74	—		—	74
Coolidge	28	—	—	—	28
Eloy	7	—			
Florence	25	—	—	—	25
Kearny	2	—		—	2
Mammoth	3	—	—	—	3
Superior	10	—		—	10
Uninc. Pinal Co.	781	6	9	2	839
SANTA CRUZ COUNTY	241		—	—	241
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	12	—	—	—	12
Uninc. Santa Cruz Co.	229	—	—	—	229
YAVAPAI COUNTY	1,895	10	13	3	2,016
Chino Valley	76	1		—	78
Clarkdale	26		1	—	30
Cottonwood	87	1	—	—	89
Jerome	2	—	—	—	2
Prescott	220	3	5	3	297
Uninc. Yavapai Co.	1,484	5	7	—	1,520
YUMA COUNTY	1,191	15	22	13	1,625
Parker	19	10	—	1	62
Somerton	22		—	1	54
Uninc. Yuma Co.	711	—	—	—	711
Wellton	2	1	—	—	4
Yuma	437	4	22	11	794
TOTAL, Maricopa Co., Year 1979	24,128	174	270	518	38,239
TOTAL, Maricopa Co., Year 1978	32,962	260	199	441	46,351
PERCENT CHANGE	-27	-33	36	17	-18
TOTAL, Arizona, Year 1979	44,542	338	387	626	63,783
TOTAL, Arizona, Year 1978	51,104	417	319	534	69,351
PERCENT CHANGE	-13	-19	21	17	-8

N/R: No report; data for this month will be combined with data reported for the following month
*Includes mobile homes

The Arizona Business Scene

1912

Arizona Tourism: A $4 Billion Year in 1979

Despite gas shortages and rising inflation rates, tourism and travel expenditures in Arizona hit a record $4 billion in 1979. Expenditures were up 18 percent over the previous year as this growing, basic industry continued to be a leading contributor to economic activity in the state.

Expenditures by tourists arriving by air increased a substantial 36 percent over 1978, with airline tourists now accounting for over half (51 percent) of total industry expenditures. The dramatic increase in air tourism was probably due to several factors, including a larger number of airlines serving Arizona, relative increases in the cost of highway travel, and availability of well-published airline discount tickets. Total expenditures by tourists traveling by motor vehicle exceeded $1.4 billion, up slightly over 1978. If corrected for inflation, however, the real total was probably off slightly from the previous year.

The two largest population centers in Arizona accounted for about three-fourths of total state expenditures, with Maricopa County representing 51 percent, or $2.1 billion, and Pima County 24 percent, or $964 million. It was estimated that 26 percent of total yearly expenditures were spent on transportation, 21 percent for lodging, 18 percent for food, and 35 percent for other expenses. Historical expenditures by type are presented in Table 1.

TABLE 1

ARIZONA TOURISM AND TRAVEL EXPENDITURES
(millions)

Year	*Lodging*	*Food*	*Transportation*	*Other*	*Total*
1979	$837.4	$738.8	$1,042.2	$1,422.3	$4,040.7
1978	688.3	663.6	816.4	1,257.4	3,425.7
1977	560.1	581.2	689.2	1,054.2	2,884.6
1976		—		—	2,431.0
1975-1976*	445.0	448.4	523.8	837.3	2,255.1

*1975-1976 fiscal year; other years are calendar years. Details for 1976 are not available. Other category includes admissions, health expenses, curios, etc.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

Another measure of the importance of tourism to the Arizona economy is the employment impact. In 1979, over 73,000 jobs in Arizona were estimated to be due directly to tourist expenditures in hotels, restaurants, food stores, and the like. Another 122,000 jobs were estimated to be indirectly due to tourism because of second and further rounds of expenditures of the initial tourist dollar. Historical trends are given in Table 2.

Of particular interest to taxpayers of the state is the fact that in 1979 these same tourists and travelers were estimated to have contributed over $200 million to the state in sales and gasoline taxes. More than three-quarters of a billion dollars in sales and gasoline tax revenue has accrued to Arizona in the past five years as shown in Table 3. No estimate is available on revenues to other tax categories such as property taxes.

TABLE 2

DIRECT AND INDIRECT EMPLOYMENT IN ARIZONA RELATED TO TOURISM AND TRAVEL

(number of workers)

Year	*Direct Employment*	*Indirect Employment*	*Total Employment*
1979	73,511	122,763	196,274
1978	71,614	119,595	191,209
1977	66,335	110,779	177,114
1976	60,746	101,426	162,172
1975-1976*	58,443	97,600	156,043

*1975-1976 fiscal year, other years are calendar years.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

TABLE 3

PUBLIC REVENUES IN ARIZONA FROM TOURISM AND TRAVEL

(millions)

Year	*State Gasoline Tax*	*State Sales Tax*
1979	$55.4	$145.7
1978	49.1	122.2
1977	44.8	102.2
1976	40.0	101.1
1975-1976*	34.7	79.8

*1975-1976 fiscal year, other years are calendar years. Estimates for other tax sources not available.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

The landmark study of Arizona tourism, entitled *The Arizona Tourism and Travel Industry*, was completed in 1976 by the Bureau of Business and Economic Research, College of Business Administration, at Arizona State University. That study, now out of print, reported that in 1975-1976 the typical motor vehicle party spent about $225 per visit, while those entering by air spent about $800 per party per visit. Most frequent states of origin for highway tourists at the time were California, Texas, and New Mexico; while California, Illinois and Texas provided the largest number of airline tourists.

Expenditures and states of origin are but a few of the many important facts currently being analyzed in a major new tourism study at Arizona State University. This new study, also being conducted by the Bureau of Business and Economic Research, involves extensive field work and distribution of questionnaires at air and bus terminals and at highway checkpoints throughout the state. It is scheduled for publication in midsummer 1980.

Growth and prosperity of tourism in Arizona are also dependent on the effort taken to market it. The Arizona Office of Tourism, the state agency charged with promotion, operates with an annual budget of $1.2 million and a permanent staff of nine. The office responds annually to over one quarter million inquiries from tourists and produces a steady flow of tourism news to the media. In addition, the office devises and implements marketing strategies that encourage travelers to visit all areas of the state, not just the major metropolitan areas.

Other agencies active in promotion are the Phoenix and Valley of the Sun Convention and Visitors Bureau and the Tucson Convention and Visitors Bureau. Individual city Chambers of Commerce are also active in promoting tourism. One of Arizona's foremost tourist marketing tools comes without cost to the public or private sectors; it is paid for by those who receive it. *Arizona Highways*, a monthly publication featuring oustanding photography, has grown to a regular subscription and newsstand circulation of 800,000, 94 percent of whom are outside Arizona. The annual Christmas issue has a circulation in excess of one million copies.

The outlook remains good for continued growth in both out-of-state and instate travel activity. If fuel prices continue to escalate, or if serious shortages develop, a change in origins and destinations may occur due to tendencies toward travel closer to home. It is uncertain if the rapid gains over the last five years can be sustained or whether new market strategies will be necessary to capitalize on recent trends.

Despite energy strains and inflation, tourism and travel remain important to nearly every household. The tourism industry is expected to continue as a healthy sector of the Arizona economy.

A Survey of Arizona Business Conditions

HAROLD FEARON

The growth in the Arizona economy paused toward the end of February, according to results from the monthly business survey of the Purchasing Management Association of Arizona. New orders received from customers as well as production were at a standstill in February, following the upward movements recorded in January. Several respondents commented that the flood damage and resultant traffic snarls have drastically affected their operations.

Now in its eighteenth year of monthly reporting on the condition of the Arizona economy, the Purchasing Management Business Survey gathers data through a questionnaire sent at the close of each month to purchasing managers throughout the state. They report whether performance on six key indicators of economic performance increased, decreased, or remained the same compared to the previous month. Since these purchasing managers deal with market forces on a daily basis, they can provide a timely and accurate picture of current business trends.

Prices paid for major purchased items continued their rapid upward movement, although the net increase rate was slightly smaller than in January. Higher prices were reported by 78 percent of the purchasing managers; 21 percent said prices were unchanged; and only 1 percent paid lower prices in February compared to January. No relief from the torrid inflation pace appears to be in sight, for none of the remedies applied so far have been effective. A continuation of this steep upward price trend will continue for at least the first half of the year and probably longer.

Delivery time on shipments from vendors continued to stretch out, and at a rate slightly higher than in January. This was the highest monthly increase rate in the past three months. Longer delivery times were reported by 40 percent of the firms, which was eight times the 5 percent that received faster deliveries from their vendors. Certainly the transportation problems in the last half of the month caused by the floods contributed to the difficulties in getting prompt shipments of needed purchased items.

Inventory levels of purchased materials went up again in February and at the highest monthly net increase rate since last August: 37 percent added to stocks, which was twice as great as the 18 percent that reduced inventory. Some of this increase may have been due to the leveling off in the rate of increase in production, which may have had the effect of backing up production materials inventories, but the increase does not appear that far out of line with new order receipts and does not pose any immediate threat to Arizona's economic health.

Dr. Fearon is Professor of Management in the College of Business Administration at Arizona State University.

New orders received from customers showed only a very small increase in February, and the rate was substantially under that recorded in January: 29 percent said their firm booked more new business in February than in January, but this was nearly equaled by the 26 percent that saw their order books shrink. Several of the respondents reported that business was coming in at a good clip until the floods hit, but that there had been a significant reduction in new orders during the last two weeks in February.

Production of Arizona firms showed no change in February, compared to January. This marked the first time since December, 1975 (forty-nine months ago), that the state has not enjoyed an increase in production, but it is consistent with the poor new order performance. The 28 percent of the firms reporting increased production was balanced by an equal percent who cut output.

Employment of Arizona firms went up in February, for the fiftieth consecutive month, and at a monthly increase rate about the same as in January. Higher employment was reported by 27 percent, while 16 percent pared payrolls. While the January and February increases were well under those in almost all the months of 1978 and 1979, employment still continues to follow a positive trend and is indicative of the underlying strength of the Arizona economy.

Thus, Arizona's economic growth slipped in February, and the economy marked time. This is not surprising, considering the disruptions caused by the flooding. This pause should be only temporary, and once the problems related to the weather disaster are relieved, the Arizona economy should get back on the growth track.

The results of the February purchasing survey are shown in Table 1.

TABLE 1

FEBRUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (February compared to January)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	78	21	1
Delivery time from vendors	40	55	5
Purchased materials inventory level	37	45	18
New orders received	29	45	26
Production	28	44	28
Employment	27	57	16

Source: Survey of the Purchasing Management Association of Arizona.

ARIZONA SALES OF ELECTRICAL POWER
By Months
(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1980	*1979*	*Same Month Previous Year*	*Previous Month*
January	2,200.0	2,206.5	-.30	+ 1.0

Source: Based on reports from major suppliers.

Arizona New Housing Starts: Monthly Report

JANUARY, 1980

BUILDING PERMITS ISSUED

CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	6	—	—	—	6
Eagar	—	—	—	—	—
St. Johns	3	—	—	—	3
Springerville	—	—	—	—	—
Uninc. Apache Co.	3	—	—	—	3
COCHISE COUNTY	66	—	—	—	66
Benson	4	—	—	—	4
Bisbee	—	—	—	—	—
Douglas	2	—	—	—	2
Huachuca City	—	—	—	—	—
Sierra Vista	32	—	—	—	32
Tombstone	—	—	—	—	—
Uninc. Cochise Co	27	—	—	—	27
Willcox	1	—	—	—	1
COCONINO COUNTY	38	2	—	—	42
Flagstaff	8	2	—	—	12
Fredonia	3	—	—	—	3
Page	8	—	—	—	8
Uninc. Coconino Co	19	—	—	—	19
Williams	—	—	—	—	—
GILA COUNTY	25	1	—	—	27
Globe	—	1	—	—	2
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	8	—	—	—	8
Uninc. Gila Co.	17	—	—	—	17
GRAHAM COUNTY	16	—	—	—	16
Pima	1	—	—	—	1
Safford	2	—	—	—	2
Thatcher	1	—	—	—	1
Uninc. Graham Co	12	—	—	—	12
GREENLEE COUNTY	2	—	—	—	2
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	2	—	—	—	2
MARICOPA COUNTY	1,327	16	20	74	3,531
Avondale	—	—	—	—	—
Buckeye	3	—	—	—	3
Chandler	93	—	—	—	93
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	3	—	—	—	3
Glendale	84	—	—	—	84
Goodyear	—	—	—	—	—
Guadalupe	3	—	—	—	3
Mesa	168	6	6	3	337
Paradise Valley	13	—	—	—	13
Peoria	9	—	—	—	9
Phoenix	444	1	—	28	1,933
Scottsdale	86	—	—	—	86
Surprise	—	—	—	—	—
Tempe	58	9	10	40	552
Tolleson	—	—	—	—	—
Uninc. Maricopa Co.	382	—	4	3	414
Wickenburg	1	—	—	—	1
Youngtown	—	—	—	—	—
MOHAVE COUNTY	186	1	—	—	188
Kingman City	11	—	—	—	11
Kingman Area	20	—	—	—	20
Lake Havasu City	63	1	—	—	65
Lake Havasu Area	13	—	—	—	13
Mohave Valley North	54	—	—	—	54
Mohave Valley South	12	—	—	—	12
Dolan Springs	5	—	—	—	5
Sacramento Valley	5	—	—	—	5
Mohave Co. General	3	—	—	—	3
NAVAJO COUNTY	19	—	—	—	19
Holbrook	1	—	—	—	1
Show Low	3	—	—	—	3
Snowflake	2	—	—	—	2
Taylor	—	—	—	—	—
Uninc. Navajo Co	11	—	—	—	11
Winslow	2	—	—	—	2
PIMA COUNTY	385	13	8	6	833
Marana	—	—	—	—	—
Oro Valley	1	—	—	—	1
South Tucson	2	—	—	—	2
Tucson	47	13	8	5	194
Uninc. Pima Co	335	—	—	1	636
PINAL COUNTY	59	1	1	—	64
Casa Grande	8	—	—	—	8
Coolidge	—	—	—	—	—
Eloy	—	—	—	—	—
Florence	2	—	—	—	2
Kearny	1	—	—	—	1
Mammoth	—	—	—	—	—
Superior	—	—	—	—	—
Uninc. Pinal Co.	48	1	1	—	53
SANTA CRUZ COUNTY	6	—	—	—	6
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—
Uninc. Santa Cruz Co	6	—	—	—	6
YAVAPAI COUNTY	123	—	2	—	130
Chino Valley	3	—	—	—	3
Clarkdale	2	—	—	—	2
Cottonwood	13	—	—	—	13
Jerome	N/R	N/R	N/R	N/R	N/R
Prescott	19	—	—	—	19
Uninc. Yavapai Co	86	—	2	—	93
YUMA COUNTY	135	—	—	—	135
Parker	3	—	—	—	3
Somerton	2	—	—	—	2
Uninc. Yuma Co	80	—	—	—	80
Wellton	—	—	—	—	—
Yuma	50	—	—	—	50
TOTAL, Maricopa Co., January 1980	1,327	16	20	74	3,531
TOTAL, Maricopa Co., January 1979	2,226	8	15	44	3,710
PERCENT CHANGE	-40	100	33	68	-5
TOTAL, Arizona, January 1980	2,393	34	31	80	5,065
TOTAL, Arizona, January 1979	3,547	21	20	53	5,285
PERCENT CHANGE	-33	62	55	51	-4

N/R: No report; data for this month will be combined with data reported for the following month.

*Includes mobile homes

Arizona Building Permits: Monthly Report

CENSUS DIVISION	*RESIDENTIAL**		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
APACHE COUNTY	6	71,300	1	20,000	—	—	—	—	7	91,300
Eagar	—	—	—	—	—	—	—	—	—	—
St. Johns	3	N/C	—	—	—	—	—	—	3	N/C
Springerville	—	—	—	—	—	—	—	—	—	—
Unincorporated Apache County	3	71,300	1	20,000	—	—	—	—	4	91,300
COCHISE COUNTY	136	2,174,080	6	114,200	—	—	79	364,600	221	2,652,880
Benson	8	98,550	—	—	—	—	8	8,577	16	107,127
Bisbee	21	27,500	—	—	—	—	7	5,675	28	33,175
Douglas	8	118,820	—	—	—	—	3	1,349	11	120,169
Huachuca City	5	8,796	—	—	—	—	—	—	5	8,796
Sierra Vista	53	1,171,803	—	—	—	—	44	117,021	97	1,288,824
Tombstone	—	—	—	—	—	—	2	130	2	130
Unincorporated Cochise County	35	693,109	5	111,200	—	—	15	231,848	55	1,036,157
Willcox	6	55,502	1	3,000	—	—	—	—	7	58,502
COCONINO COUNTY	55	1,590,130	8	400,458	—	—	26	43,412	89	2,034,000
Flagstaff	15	672,971	7	388,458	—	—	7	28,162	29	1,089,591
Fredonia	3	60,000	1	12,000	—	—	2	600	6	72,600
Page	8	78,000	—	—	—	—	3	8,000	11	86,000
Unincorporated Coconino County	28	778,424	—	—	—	—	10	6,083	38	784,507
Williams	1	735	—	—	—	—	4	567	5	1,302
GILA COUNTY	39	630,542	6	306,497	1	37,000	12	12,470	58	986,509
Globe	3	36,000	—	—	—	—	3	3,900	6	39,900
Hayden	—	—	—	—	—	—	—	—	—	—
Miami	2	55,500	—	—	—	—	—	—	2	55,500
Payson	14	89,523	2	257,997	—	—	8	8,500	24	356,020
Unincorporated Gila County	20	449,519	4	48,500	1	37,000	1	70	26	535,089
GRAHAM COUNTY	29	354,900	9	1,347,500	—	—	4	2,000,700	42	3,703,100
Pima	1	25,000	—	—	—	—	—	—	1	25,000
Safford	8	46,300	5	35,500	—	—	3	700	16	82,500
Thatcher	7	93,000	2	1,300,000	—	—	1	2,000,000	10	3,393,000
Unincorporated Graham County	13	190,600	2	12,000	—	—	—	—	15	202,600
GREENLEE COUNTY	2	102,000	—	—	—	—	—	—	2	102,000
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	—	—	—	—	—	—	—	—	—	—
Unincorporated Greenlee County	2	102,000	—	—	—	—	—	—	2	102,000
MARICOPA COUNTY	2,337	48,065,187	228	55,810,898	48	11,784,910	1,828	17,229,925	4,441	132,890,920
Avondale	3	13,245	3	173,200	—	—	4	24,700	10	211,145
Buckeye	3	91,000	—	—	—	—	5	35,350	8	126,350
Chandler	115	1,558,875	—	—	1	58,500	171	345,075	287	1,962,450
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	2	5,000	—	—	—	—	—	—	2	5,000
Gilbert	3	145,000	2	1,179,592	2	1,070,000	19	107,059	26	2,501,651
Glendale	130	3,121,270	7	225,400	—	—	158	546,183	295	3,892,853
Goodyear	—	—	—	—	—	—	10	14,849	10	14,849
Guadalupe	5	81,910	—	—	—	—	—	—	5	81,910
Mesa	322	3,562,143	17	3,471,500	3	501,677	203	3,195,497	545	10,730,817
Paradise Valley	29	1,822,315	—	—	—	—	38	195,172	67	2,017,487
Peoria	12	231,873	1	144,425	—	—	18	263,000	31	639,298
Phoenix	749	18,836,414	95	37,032,194	31	8,181,571	685	6,048,335	1,560	70,098,514
Scottsdale	149	4,371,146	8	2,719,555	1	206,947	242	1,395,226	400	8,692,874
Surprise	1	2,000	—	—	—	—	2	203	3	2,203
Tempe	174	1,417,300	68	8,087,200	10	1,766,215	68	3,435,200	320	14,705,915
Tolleson	1	400	—	—	—	—	1	1,400	2	1,800
Unincorporated Maricopa County	601	12,535,085	27	2,777,832	—	—	201	1,621,536	829	16,934,453
Wickenburg	15	227,618	—	—	—	—	—	—	15	227,618
Youngtown	23	42,593	—	—	—	—	3	1,140	26	43,733

Arizona Building Permits: Monthly Report (Continued)

JANUARY, 1980	*RESIDENTIAL** *Number of Permits*	*Dollar Value*	*COMMERCIAL* *Number of Permits*	*Dollar Value*	*INDUSTRIAL* *Number of Permits*	*Dollar Value*	*OTHER* *Number of Permits*	*Dollar Value*	*TOTAL* *Number of Permits*	*Dollar Value*
MOHAVE COUNTY	405	5,495,726	14	2,032,196	4	823,786	84	171,395	507	8,523,103
Kingman City	18	248,340	6	1,581,224	—	—	13	27,644	37	1,857,208
Kingman Area	48	372,424	—	—	1	33,852	11	9,920	60	416,196
Lake Havasu City	80	2,448,048	3	142,428	3	789,934	12	79,809	98	3,460,219
Lake Havasu Area	38	249,238	—	—	—	—	6	16,598	44	265,836
Mohave Valley North	160	1,481,348	2	132,384	—	—	15	12,552	177	1,626,284
Mohave Valley South	38	419,026	2	112,800	—	—	13	7,568	53	539,394
Dolan Springs	9	69,748	—	—	—	—	7	8,414	16	78,162
Sacramento Valley	9	102,200	—	—	—	—	6	7,930	15	110,130
Mohave County General	5	105,354	1	63,360	—	—	1	960	7	169,674
NAVAJO COUNTY	25	314,988	1	10,000	1	N/C	4	13,852	31	338,840
Holbrook	1	N/C	—	—	—	—	—	—	1	N/C
Show Low	3	21,312	—	—	—	—	3	13,852	6	35,164
Snowflake	2	N/C	—	—	—	—	—	—	2	N/C
Taylor	—	—	—	—	—	—	—	—	—	—
Unincorporated Navajo County	16	198,676	—	—	1	—	1	N/C	18	198,676
Winslow	3	95,000	1	10,000	—	—	—	—	4	105,000
PIMA COUNTY	815	10,074,824	37	15,738,936	—	—	420	3,698,465	1,272	29,512,225
Marana	—	—	—	—	—	—	—	—	—	—
Oro Valley	2	107,000	—	—	—	—	—	—	2	107,000
South Tucson	5	136,778	4	12,200	—	—	—	—	9	148,978
Tucson	205	1,652,224	26	10,055,736	—	—	322	2,946,605	553	14,654,565
Unincorporated Pima County	603	8,178,822	7	5,671,000	—	—	98	751,860	708	14,601,682
PINAL COUNTY	97	1,375,771	8	441,835	—	—	32	279,630	137	2,097,236
Casa Grande	22	210,068	2	21,500	—	—	11	216,780	35	448,348
Coolidge	8	4,800	—	—	—	—	6	9,600	14	14,400
Eloy	2	2,153	—	—	—	—	—	—	2	2,153
Florence	2	26,000	—	—	—	—	5	30,525	7	56,525
Kearny	2	36,250	1	348,135	—	—	—	—	3	384,385
Mammoth	—	—	—	—	—	—	—	—	—	—
Superior	1	3,000	1	900	—	—	—	—	2	3,900
Unincorporated Pinal County	60	1,093,500	4	71,300	—	—	10	22,725	74	1,187,525
SANTA CRUZ COUNTY	9	413,292	1	40,000	—	—	2	34,480	12	487,772
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	1	500	—	—	—	—	—	—	1	500
Unincorporated Santa Cruz County	8	412,792	1	40,000	—	—	2	34,480	11	487,272
YAVAPAI COUNTY	184	4,214,534	9	271,242	1	7,000	65	721,000	259	5,213,776
Chino Valley	4	80,200	1	14,500	—	—	2	1,050	7	95,750
Clarkdale	2	104,350	—	—	—	—	1	200	3	104,550
Cottonwood	21	319,650	1	250	—	—	7	5,640	29	325,540
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	45	656,226	1	74,750	—	—	37	684,084	83	1,415,060
Unincorporated Yavapai County	112	3,054,108	6	181,742	1	7,000	18	30,026	137	3,272,876
YUMA COUNTY	198	3,957,985	2	192,349	1	97,500	46	796,373	247	5,044,207
Parker	4	89,840	—	—	—	—	2	5,850	6	95,690
Somerton	2	72,000	—	—	—	—	3	N/C	5	72,000
Unincorporated Yuma County	121	2,144,163	2	192,349	1	97,500	20	689,561	144	3,123,573
Wellton	—	—	—	—	—	—	—	—	—	—
Yuma	71	1,651,982	—	—	—	—	21	100,962	92	1,752,944
*TOTAL Maricopa County, January 1980	2,337	48,065,187	228	55,810,898	48	11,784,910	1,828	17,229,925	4,441	132,890,920
TOTAL Maricopa County, January 1979	2,929	66,898,095	168	34,800,137	36	2,317,139	1,664	26,124,513	4,797	130,139,884
PERCENT CHANGE	− 20	− 28	36	60	33	409	10	− 34	− 7	2
TOTAL Arizona, January 1980	4,337	78,835,259	330	76,726,111	56	12,750,196	2,602	25,366,302	7,325	193,677,868
TOTAL Arizona, January 1979	5,321	105,142,066	270	49,034,806	53	40,748,433	2,301	30,761,322	7,945	225,686,627
	− 18	− 25	22	56	6	− 69	13	− 18	− 8	− 14

N/C: Not collected. N/R: No report: data for this month will be combined with data reported for the following month

*Includes mobile homes.

Maricopa County Monthly Retail Food Prices

FEBRUARY, 1980

In February the Maricopa County Index of Food Consumed at Home decreased 0.6 percent following an increase of 0.2 percent during January. The February index value of 230.4 indicates that county shoppers had to pay $23.04 for a similar basket of foodstuffs that would have cost $10.00 in 1967. This food basket could have been purchased for $21.39 one year ago.

The decrease, the first since August, 1979, was due to the drop in the *Fruits and Vegetables* subgroup (-6.0 percent) along with a decline in *Meats, Poultry, Fish, and Eggs* (-1.5 percent). These decreases were partially offset by gains in the *Other Foods* (1.7 percent), *Cereals and Bakery Products* (1.5 percent), and *Dairy Products* (0.7 percent) categories.

Seasonal variations led to plunging prices in tomatoes (-43.8 percent), lettuce (-29.1 percent), and oranges (-21.6 percent), which contributed to the fall in the index value of *Fruits and Vegetables*. The drop, however, was somewhat counteracted by increases in frozen vegetables (6.4 percent) and bananas (6.1 percent). A decline in the *Meats, Poultry, Fish, and Eggs* subgroup resulted primarily from lower prices for eggs (-12.8 percent) and for most beef and pork items, especially bacon (-6.3 percent), noncanned ham (-5.8 percent), pork chops (-4.1 percent), and ground beef (-2.3 percent). However, increases in prices of fresh whole chicken (6.5 percent) and fresh and frozen fish and shellfish (3.5 percent) slowed this downward movement.

Prices generally rose in the *Other Foods* category, particularly nuts, potato chips, and other snacks (6.2 percent), candy and chewing gum (5.7 percent), and sugar and artificial sweeteners (3.5 percent). Gains in bread other than white (7.4 percent), cookies (3.1 percent), and flour and prepared flour mixes (2.1 percent) contributed to the surge in *Cereal and Bakery Products*. While most items in the *Dairy Products* subgroup remained constant in price, increases in a few items, such as butter (2.5 percent), resulted in a small gain.

A comparison of the November Food Consumed at Home Index for Maricopa County with index values for four selected metropolitan areas reveals that the outlays required to purchase a food group in November, 1979 (obtainable for an outlay of $10.00 at 1967 average prices) were $22.63 in Maricopa County; $23.47 in Los Angeles-Long Beach; $24.15 in San Francisco-Oakland; $23.87 in Chicago-Northwestern Indiana; and $23.60 in the United States (average).

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States, and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	Maricopa County Feb. '80[a]	Maricopa County Nov. '79[b]	United States Nov. '79	Los Angeles-Long Beach Nov. '79	San Francisco-Oakland Nov. '79	Chicago-North-western Indiana Nov. '79
Food Consumed at Home	230.4	226.3	236.0	234.7	241.5	238.7
Cereals and Bakery Products	220.3	215.4	228.7	234.8	231.6	232.9
Meats, Poultry, Fish, and Eggs	241.9	236.0	230.2	232.7	241.9	233.7
Dairy Products	205.6	203.5	216.0	202.3	203.1	214.0
Fruits and Vegetables	200.6	204.3	229.5	225.2	233.5	239.8
Other Foods Consumed at Home	256.5	249.0	279.6	276.1	296.6	285.0

* Computed from data contained in The Consumer Price Index, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisions of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index Comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank

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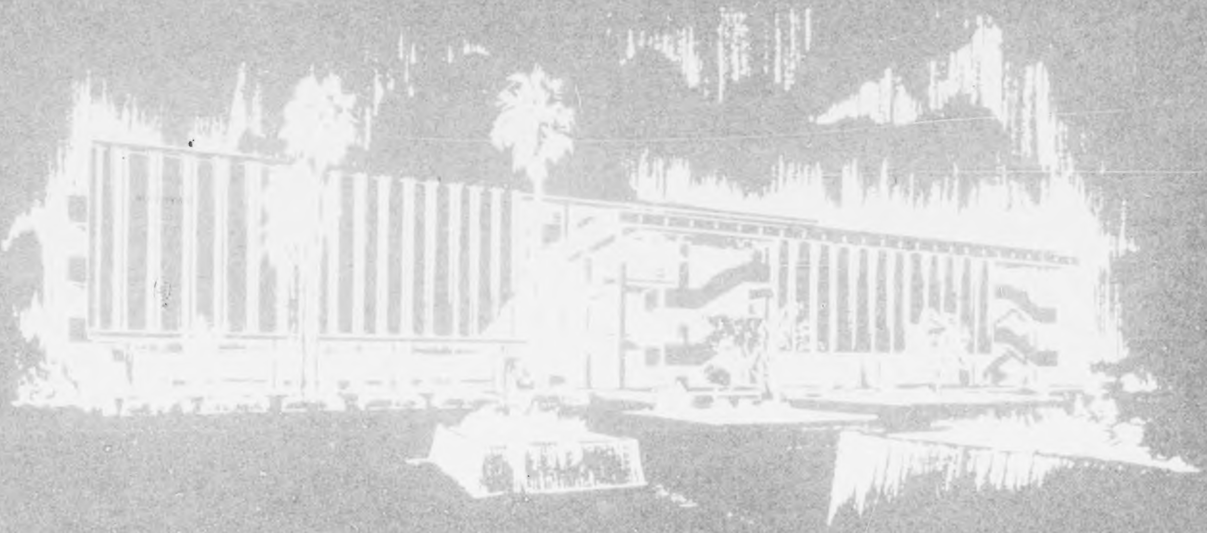
April 1980

ARIZONA BUSINESS



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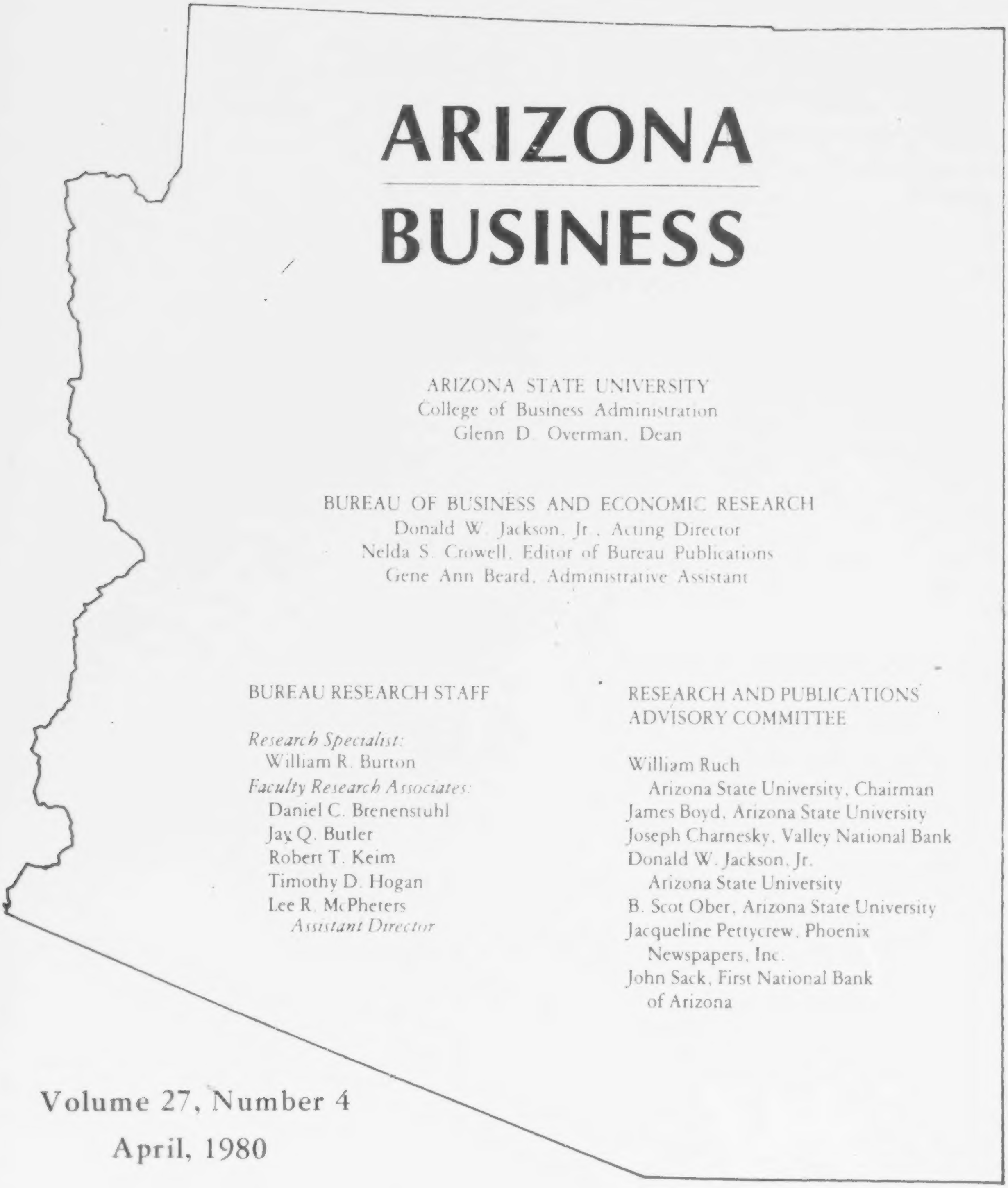

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Volume 27, Number 4
April, 1980

In This Issue

Analyzing Social Security Alternatives 3
Thomas B. Morehart
Gary L. Trennepohl

Implementing a Zero-Base Budgeting System 9
Bill N. Schwartz

Doctoral Dissertation Abstract 19
Bill McDonald

Homeowner Warranties: Implications
for Buyers and Builders 20
Marianne Jennings

Arizona Business Scene —
Fort Huachuca: Important Defense Installation 25

A Survey of Arizona Business Conditions 27
Harold Fearon

Arizona Sales of Electrical Power 28

Arizona New Housing Starts:
Monthly Report, February 29

Arizona Building Permits:
Monthly Report, February 30

Maricopa County Monthly
Retail Food Prices, March 32

Metropolitan Phoenix
Consumer Price Index:
First Quarter, 1980 33

Arizona Economic Indicators 36

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Analyzing Social Security Alternatives

THOMAS B. MOREHART
GARY L. TRENNEPOHL

During the past ten years, FICA[1] taxes have increased a dramatic 375 percent for higher paid workers; and, as illustrated in Table 1, continued escalation has been proposed by Congress over the next ten years. This increasing tax burden will fall on both employers and employees who must contribute the FICA taxes to finance benefits under the Social Security Act. Table 1 illustrates how FICA taxes, the taxable wage base (the dollar amount of wages subject to FICA taxes), and the maximum taxes (paid by workers who have wages at least equal to the taxable wage base) have changed since the program's inception in 1937. Also shown are projected changes through 1990.

This article reviews taxes and benefits under the Social Security system; current and projected problems of the system; steps that can be taken by all organizations to alleviate the tax burden; and factors to be considered by state, local, and nonprofit organizations in evaluating withdrawal from Social Security.[2]

The tremendous increases in FICA taxes and the taxable wage base have focused concern on ways to alleviate this tax burden. As shown in Table 2, state and local governments and tax-qualified nonprofit charitable organizations comprise approximately 20 percent of the Arizona workforce. These groups have a unique legal opportunity to withdraw from the Social Security system and thereby avoid FICA taxes. This option places these groups on a par with the present 37,500 federal government workers in Arizona who do not participate in Social Security. All other organizations must participate in Social Security, but specific techniques are available to all organizations to reduce their tax burdens. Before taking such drastic steps, however, an organization must compare the benefits from Social Security to the costs incurred by both the organization and its employees in order to make a rational judgment. Even if no change is anticipated, organizations need to make cost-benefit comparisons before taking positions regarding future Social Security legislation.

SOCIAL SECURITY COSTS AND BENEFITS

The Old Age, Survivors, Disability and Health Insurance programs (OASDHI), under the Social Security Act of 1935, and financed by the FICA tax, provide the following benefits:[3]

Nonprofit organizations have the option of withdrawing from Social Security. Other companies can reduce the tax by paying both the employer and the employee contributions. This article reviews Social Security costs and benefits and explores the alternatives.

Thomas B. Morehart and Gary L. Trennepohl are faculty members in the Department of Finance, College of Business Administration, Arizona State University.

Old Age Retirement Benefits. Cash Retirement benefits (presently averaging $265 per month) are paid to retired workers and their spouses, and to surviving spouses. An average monthly benefit to an individual retiree represents about 41 percent of the average monthly income earned just before retirement. Full retirement benefits are paid at age 65, though permanently reduced benefits can begin as early as age 62. A spouse or former spouse who has never had individual coverage under Social Security is eligible to draw half of his or her spouse's retirement benefit if married at least 10 years.

TABLE 1

SOCIAL SECURITY TAX SUMMARY

Year	*Maximum Taxable Wage*	*Tax Rate (Percentage Paid by Both Employer and Employee)*	*Maximum Tax*	*Combined Employer and Employee Tax*
1937-1949	$3,000	1.0	$ 30.00	$ 60.00
1950	3,600	1.5	45.00	90.00
1951-1953	3,600	1.5	54.00	108.00
1954	3,600	2.0	72.00	144.00
1955-1956	4,200	2.0	84.00	168.00
1957-1958	4,200	2.25	94.50	189.00
1959	4,800	2.5	120.00	240.00
1960-1961	4,800	3.0	144.00	288.00
1962	4,800	3.125	150.00	300.00
1963-1965	4,800	3.625	174.00	348.00
1966	6,600	4.2	277.20	554.40
1967	6,600	4.4	290.40	580.80
1968	7,800	4.4	343.20	686.40
1969	7,800	4.8	374.40	748.80
1970	7,800	4.8	374.40	748.80
1971	7,800	5.2	405.60	811.20
1972	9,000	5.2	468.00	936.00
1973	10,800	5.85	631.80	1,263.60
1974	13,200	5.85	772.20	1,544.40
1975	14,100	5.85	824.85	1,649.70
1976	15,300	5.85	895.05	1,790.10
1977	16,500	5.85	965.25	1,930.50
1978	17,700	6.05	1,150.50	2,301.00
1979	22,900	6.13	1,403.77	2,807.54
1980	25,900	6.13	1,587.67	3,175.34
1981	29,700	6.65	1,975.05	3,950.10
1982	31,780*	6.70	2,219.26	4,258.52
1983	34,003	6.70	2,278.20	4,556.40
1984	36,384	6.70	2,437.73	4,875.46
1985	38,931	7.05	2,744.64	5,489.27
1986	41,656	7.15	2,978.40	5,956.81
1987	44,572	7.15	3,186.90	6,373.80
1988	47,692	7.15	3,409.98	6,819.96
1989	51,030	7.15	3,648.65	7,297.29
1990	54,602	7.65	4,166.05	8,354.11

*Estimated after 1981 using a 7 percent rate of inflation. The law specified increased in accordance with increases in average earnings.

Source: Social Security Bulletin, various issues

Survivor's Benefits. When a covered worker dies, monthly cash benefits (presently averaging $183 to $240 per month) are paid to surviving children, a surviving spouse (while children under age 18 are eligible), and to dependent parents.

Disability Benefits. If a covered worker is so severely disabled that he or she cannot work, cash benefits (presently averaging $289 per month) are payable to the worker, a spouse, and children for the duration of the disability. A five-month waiting period after the disability is required before monthly benefits begin.

Health Insurance (Medicare). Health Insurance pays hospitalization costs and other medical expenses for retired workers and spouses at age 65 and for disability beneficiaries who have been receiving disability benefits for at least two years. Medicare benefits are categorized into Part A, covering hospital costs, and Part B, covering physician and home health care. Part A is provided to all Old Age beneficiaries at age 65 for no cost and Part B can be purchased by anyone over 65 years of age. Part A is also available to persons who do not qualify for Old Age benefits if a separate premium is paid.

Benefits under the Social Security program are financed on a "pay-as-you-go" basis. Current FICA tax revenues pay for the retirement, survivors', disability and health insurance benefits (except Part B, Health Insurance benefits) of current recipients. Temporarily surplus revenues from FICA taxes are deposited in trust funds invested in government securities. Surpluses are drawn upon when tax receipts do not cover benefits. In the years to come, beneficiaries of Social Security must

TABLE 2

ARIZONA NONAGRICULTURAL EMPLOYMENT SELECTED CATEGORIES

Category	*Number of Employees*
Government	206,100
Federal	37,500
State and Local	168,600
Public Schools	101,800
Nonprofit Organizations (except hospitals)	38,800
Health Services	49,600
Total (Government, Nonprofit, Health Services)	294,500
Other	716,200
Total Employment	1,010,700

Source: Arizona Department of Economic Security, Labor Market Information Research and Analysis; figures are reported as of December, 1979.

rely on sufficient continued tax revenues to provide their benefits. The tremendous escalation in Social Security taxes over the past 30 years and the estimated future increases raise serious questions concerning the ability and willingness of future generations to support the program.

HOW TO REDUCE SOCIAL SECURITY TAXES

Either private industry groups which are required to participate in Social Security or other groups which participate on an optional basis may reduce Social Security (FICA) taxes by either paying the employee's portion of the FICA tax or not paying FICA taxes on paid sick days. The way these techniques reduce Social Security taxes is described below.

First, the Social Security Act permits an employer to pay both the employee and employer contributions to FICA and, furthermore, not to include the FICA contribution made for the employee in the employee's income subject to FICA tax (the contribution made by the employer does represent taxable income for income tax purposes). Also, the employee will enjoy a slight reduction in taxable income. These procedures are illustrated in the following example.

Suppose a worker earns $10,000 a year. Presently, the worker pays $613 (6.13 percent) FICA tax and the employer pays $613 of FICA tax, for a total tax of $1,226. If the employer elects to pay both contributions, the employee's FICA-taxable income could be reduced to $9,387 ($10,000 minus $613). The savings in FICA tax results because the combined tax rate (12.26 percent) is applied against a lower gross income amount. The combined employer-employee FICA tax (12.26 percent) on $9,387 would be $1,150.84, which is $75.16 less than the $1,226 paid before. A benefit for the employee is that taxable income for *income tax* purposes now becomes $9,387 + $575.42 = $9,962.42 resulting in a small savings in income tax and therefore an increase in take-home pay. The savings to a small employer are not very great; however, the savings to a large employer (for example, one with 10,000 employees whose average pay is $10,000) could be significant. In the example, the yearly savings would be approximately $751,600 (10,000 x $75.16).

Use of this procedure should be made only after considering that it results in slight reductions of employees' Social Security benefits, that it may be difficult to explain to employees, and that it reduces revenue for the Social Security system. Increased emphasis on the use of this procedure recently has prompted Congress to consider legislation to eliminate this loophole. To date this legislation has not been enacted.

Second, employers which offer paid sick leave should examine their records to determine if they are paying FICA taxes on employees' paid sick days. The law does not require payment of FICA taxes on sick leave wages, but many employers, including such large organizations as Ford and GAF Corporation, have discovered only recently that these taxes are not required. Substantial tax savings can result from monitoring sick leave wages and correspondingly reducing FICA taxes. Additional recovery of past taxes paid in error on sick pay may also substantially reduce FICA tax costs. One consulting firm, Fiscal Recovery Associates of San Mateo, California, estimates companies may have overpaid FICA taxes in this manner by more than $500 million.[8]

The described procedures can be used by all organizations to reduce their social security tax burden. The next section describes why certain qualified governmental and nonprofit organizations might consider withdrawal from the Social Security system.

WITHDRAWAL FROM SOCIAL SECURITY

Because of the increased costs and funding uncertainties regarding Social Security, state and local governments and qualified nonprofit organizations with the legal right to withdraw are exploring leaving the Social Security system and replacing those benefits with private insurance plans. Exact replacement of Social Security benefits by private insurance generally is not possible since Social Security benefits automatically increase with inflation, and private companies usually will not base benefits on a contingency such as inflation. Evaluating the question of withdrawing from the Social Security system is difficult and requires that a number of specific factors be analyzed before a decision is made. These factors, which include the future soundness of the system, financial considerations, political considerations, and social questions, are examined.

Factors in Withdrawal

Future Soundness of Social Security. Since Social Security is funded by tax dollars, the system will be solvent as long as Congress levies sufficient taxes, but a major concern is whether the direct tax on employee earnings alone will continue to support the Social

Security system. The following developments are making this more difficult.

Increases in the Rate of Inflation. The current law specifies that Social Security benefits will increase directly with inflation. Continued inflation and concurrently increasing benefits lead to higher FICA taxes for employers and employees. Such increases also lead to consideration of funding Social Security benefits using general tax revenues.

Decreased Mortality. Total Social Security benefits will increase as individual life spans lengthen. Significant medical breakthroughs regarding heart disease or cancer, therefore, would make it more difficult for current workers to support an expanding retirement population with only FICA taxes. Today over 22 million people[8] receive Social Security retirement benefits; a five or ten-year increase in average life expectancy could significantly increase the cost of the system.

Decline in the Birth Rate. The size of the future work force is directly related to the birth rate. The reduction in the rate observed over the last decade (actual birth rate declining from 2.43 births per female of childbearing age to 1.79[9]) means that fewer workers will be supporting each retiree in the future. Ultimately this will result in a smaller group of retirees; however, this eventuality will not occur for fifty years or more.

Increases in the Unemployment Rate or Changes in Retirement Age. A changing ratio of Social Security beneficiaries to workers also can be caused by increases or decreases in unemployment or by raising or lowering the retirement age thus making it difficult to make accurate predictions of future costs and benefits.

Benefit Changes. Benefits under Social Security are established by statute and can be changed by Congress. Since 1950, average Social Security benefits have increased over 600 percent while the consumer price index has increased about 296 percent.[10] If Congress continues to grant benefit increases at rates exceeding rises in consumer prices and incomes, funding the system from payroll taxes will become less tolerable.

Consideration of these factors indicates why the Social Security system must undergo dramatic changes to remain effective. Yet a decision to withdraw from the Social Security system probably should not be based on the system's future soundness, but more correctly, should be based on an analysis of benefits to be received by an organization's employees and the cost of these benefits. A procedure for performing this analysis is described in the following section.

Financial Considerations

The short-run financial impact on the organization withdrawing from Social Security is always favorable. If a group desires only to save money in the short run, it can do so by choosing to withdraw from the system. However, determination of the long-range financial picture requires in-depth analysis of the impact on the company, on the employee group, and on specific classes of employees.

Can the company withdraw from Social Security and provide employees the same or better benefits as Social Security for the same or less cost? Analysis of this question requires the company to project, first of all, the future structure of its work force and the future retirement, survivors, disability, and Medicare benefits that the work force should expect from Social Security and, secondly, the costs that would be incurred under Social Security (employer and employee FICA taxes) or under a replacement package of private insurance coverages. These comparisons can be made easily using a computer simulation model. A simulation model allows many random variables to interact over a simulated period, producing forecasts with reality unobtainable from most projection techniques. In addition, a simulation model can be tailored to each organization's work force and particular situation to produce unique results for that employee group.

Projections of the costs and benefits for an employee work force require consideration of the following work force characteristics: age of employees; overall salaries; salaries of employees near retirement; sex; marital status; number of dependents; work force turnover; mortality; disability rate; projected growth in work force; and projected inflation in wages and benefits. Other necessary data are current and projected Social Security tax rates; current and projected taxable wage bases (see Table 1); cost of private insurance for disability and survivor's benefits; cost of medicare premiums; and cost of employee's retirement program.

Year-by-year projections of relevant variables can be produced using simulation. For most organizations these annual projections should include payroll; total FICA taxes; private insurance costs; number retiring and retirement benefits; number disabled and total disability benefits; deaths and death benefits; and survivor's benefits. A long run simulation projection over fifty years or longer enables relevant cost comparisons for all alternatives under consideration. Because of the timing differences in cash inflows and outflows, comparison of alternatives would best be made by using the discounted present value of cash flows for each alternative.

The final financial consideration is the source of funds to pay for the private benefit package. Obviously an employee suffers no loss of take-home pay if an amount equal to the total employee and employer FICA tax is used to fund private benefits. Currently, this amount equals 13.2 percent of salaries up to $22,900. If the organization can obtain comparable benefits at a lower total cost than FICA taxes, the excess funds can be used to increase employee wages, provide greater benefits, or reduce total payroll costs.

If the financial analysis indicates that withdrawal may be cost effective, the firm should next consider how Congressional decisions may influence their withdrawal decision and how their withdrawal affects different segments of society.

Political Considerations

Political factors to be reviewed by groups considering withdrawal include the following: First, the impact of many groups withdrawing could result in the elimination of this option by Congress and perhaps even a requirement that previously enrolled groups return to Social Security. Such a change in legislation could include penalties such as requiring groups to pay the same Social Security taxes but receive less in benefits than those who have been continually covered. If no penalties were invoked, a cost-benefit analysis of withdrawal could ignore these future contingencies; if penalties were used this would not be true. The most extreme position would require *all* employee groups whether previously covered or not to come under the Social Security system. This action would substantially raise receipts of the system since some large groups, such as federal government employees, have always been exempt from Social Security participation.

A second political concern is the future changes Congress might make in Social Security benefits or FICA taxes which could alter a withdrawal decision. Future benefit increases, FICA tax reductions, or the use of general revenue funding, which would require groups that had withdrawn to pay some of the costs without receiving any benefits in return, all could have a negative impact on a withdrawal decision. The inability of any group to fully forecast future political changes in the Social Security system introduces a unique aspect of withdrawal; a group should only withdraw if present benefits can be derived by withdrawal and if the impact on any ***anticipated*** political changes in Social Security would not alter the group's decision.

Social Considerations

Social considerations involved in the withdrawal decision include the effect such withdrawal would have on achievement of societal goals and on employees who leave an organization that has withdrawn from Social Security. The impact of withdrawal by any group may be contrary to the overall social objectives of Social Security. The cutback in financial support of the pay-as-you-go system will always be socially undesirable from the viewpoint of continued support for present beneficiaries. While the impact on present beneficiaries will be somewhat offset by a corresponding reduction in future benefits, the immediate impact on the system could be disastrous. Similarly, the effect of highly-paid groups opting out of Social Security (leaving behind a group with a higher proportion of lower paid workers) could lead to problems in restricting Social Security objectives regarding income transfer.

Another social consideration is the impact on employees and their families (and on society as a whole) who ultimately leave a group that has withdrawn. These employees may have no coverage for old age, survivors, disability or health insurance benefits under any system. While the major concern of the group considering withdrawal should always be the continuing long-term or career employee, the social implications of withdrawal in producing some workers with virtually no coverage under either Social Security or a private replacement system must also be considered.

The Impact of Withdrawal

Current law requires that any firm desiring to withdraw from Social Security must wait two years after notifying the Social Security Administration for the withdrawal to become effective. The withdrawal decision is irrevocable. The two-year waiting period allows organizations to study the question thoroughly so that a fully informed decision is made.

While analysis of the social and political factors outlined above requires opinions unique to the management of each organization, generalizations can be stated about employee group characteristics that tend to make withdrawal cost effective. The computer simulation model described earlier has been used to assist firms analyzing the withdrawal question. Though each employee group is unique, it appears that groups having the following characteristics would see reduced costs from withdrawal —

—a high proportion of married female workers
—high employee turnover
—low average employee age
—a growing work force
—low age of newly-hired employees
—a high proportion of higher-paid workers

Any group with some or all of the above characteristics having the option of withdrawal from Social Security should explore this opportunity fully.

CONCLUSIONS

Use of any alternative method to reduce Social Security taxes carries implications for the employer, the employee group, and for the Social Security system. The direct benefit, FICA tax reduction, should result in higher current income for employees and lower FICA taxes for employers. However, the employer's major concern should be the total impact of these decisions on the employees.

Reduction of FICA-taxable wages and FICA taxes will change each employee's future Social Security benefit, since benefit amounts are calculated using a formula involving earnings on which FICA taxes have been paid. However these actions will affect various employees differently. For younger employees who have many years to invest the monies saved through FICA tax reduction before they retire, the FICA tax reduction may be beneficial; for older workers who are very near retirement, the impact will be negligible since the change in retirement payments from Social Security will be minimal. For workers, who are at peak earning periods (below the maximum taxable wage base) five to ten years prior to retirement, the impact may be a permanent reduction in Social Security retirement income not offset by the limited tax reduction. The impact on married individuals may be quite beneficial in cases where the benefit may be higher based on their spouse's earnings than on their own earnings; conversely the impact on single individuals may be detrimental.

Complete withdrawal from Social Security magnifies these considerations and adds other concerns for employees who later change employment. Employees who leave a withdrawn company may experience a period without any coverage. Employees of the company at the time of withdrawal and people hired subsequently from companies covered by Social Security may well experience a period with dual coverage (and the opportunity to receive dual benefits). Probably no decision will be ideal for all present and future employees; however, the biases built into the Social Security system also make it a less than ideal system for all employees.

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[1] Federal Insurance Contributions Act.

[2] Organizations eligible to withdraw in Arizona include groups such as state employees, county government employees, city government employees, public school teachers, charitable nonprofit hospitals and similar organizations.

[3] Local Social Security Administration Offices will calculate exact benefits to which individuals are entitled and provide information about the exact level of current benefits. A summary of benefits is contained in *Your Social Security* published by USDHEW, Social Security Administration Publication No. (SSA) 79-10035.

[4] *Social Security Bulletin*, Table M-13 OASDHI Cash Benefits, June, 1979, p. 41.

[5] Robert M. Ball, *Social Security Today and Tomorrow* (New York: Columbia University Press, 1978), pp. 22-23.

[6] *Social Security Bulletin*, Table M-13 OASDHI Cash Benefits, June, 1979, p. 41.

[7] Ibid.

[8] "Labor Letter," *The Wall Street Journal*, March 11, 1980, p. 1.

[9] *Social Security Bulletin*, Table Q-4 OASDHI and SSI, June 1979, p. 75.

[10] Robert M. Ball, p. 65.

[11] *Social Security Bulletin*, Table M-13 OASDHI Cash Benefits, June, 1979, p. 41 and Bureau of Labor Statistics.

Implementing a Zero-Base Budgeting System

BILL N. SCHWARTZ

Zero-Base Budgeting (ZBB) is a favorite management buzz word of recent years. Scores of corporations and government units across the country are using ZBB, and in Arizona, for example, the Salt River Project, the State Department of Transportation and several other organizations, both private and governmental, have adopted this budgetary technique.

Others also may be thinking about the possibility of using ZBB after having heard its advantages. Proponents claim that ZBB increases participation of lower-level managers in the budgetary process, encourages them to think more about cost effectiveness, reduces duplication of efforts, and uncovers inefficiencies.

Indeed ZBB can be a useful management tool, but it is essential that managers decide whether it is appropriate for their organizations. Before deciding to use ZBB, top management should learn what is required to initiate and implement the system. They should also become familiar with ZBB's advantages, drawbacks, and the changes it prompts for the organizations that use it.

In showing managers how to implement zero base budgeting, this article reviews the history and the advantages and disadvantages of this technique.

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This article describes the three-stage process of implementing a ZBB system: the preliminary stage, the initiation state, and the monitoring stage. In the preliminary stage, top management people develop a basic understanding of the ZBB process. In the initiation stage, management institutes training in the basic procedures of ZBB and prepares employees for the changes it requires. The monitoring stage consists of the feedback and control features needed for a ZBB system. Throughout the article, the experiences of Salt River Project (SRP) and the Arizona State Department of Transportation (ADOT) are described to help the reader gain a clearer perspective of the way this budgetary technique has worked in Arizona.

THE PRELIMINARY STAGE

Interest in ZBB often begins when the budget officer reads or hears about this budget technique. The idea may be sufficiently intriguing to be discussed, with the possibility of considering ZBB for the organization.

Top management people must take an active interest in the discussions of ZBB. To participate effectively, however, they need to develop a basic understanding of what ZBB involves including its definition and relationship to incremental budgeting, something about the background and history of ZBB, the procedures ZBB requires, and its advantages and drawbacks. With this knowledge, managers should be in a position to make a decision regarding ZBB's potential in their organization.

Definition of ZBB

ZBB can mean many things to many people. Sarant's definition provides one of the most comprehensive descriptions.[1]

> ZBB is a technique which complements and links planning, budgeting, and review processes. It identifies alternative and efficient methods of utilizing limited resources in the effective attainment of selected benefits. It is a flexible management approach which provides a credible rationale for reallocating resources by focusing on the systematic review and justification of the funding and performance levels of current programs or activities.

ZBB recognizes that an organization's resources are limited and attempts to allocate those resources on the basis of a systematic review of the organization's activities. It requires that the purposes of each program be justified in order to receive funding and does not distinguish between new and continuing programs when determining where the resources will be allocated. Thus, ZBB stimulates the search for more efficient alternatives for every program, emphasizing both the intended results and the methods of accomplishing them.

The traditional incremental, or line-item, budgeting approach differs in many respects from ZBB. The incremental budget emphasizes functional relationships, not results, and is concerned with *how* an activity is conducted rather than *why* it is done. In preparing an incremental budget, an employee considers a limited range of policy options, usually those that change the manner in which an activity has been pursued previously. The employee normally assumes that the current activity is essential, is cost-efficient, and should be continued along the same lines as it was in the past. Thus, the estimates are based on last year's expenditure levels and include additional amounts for cost increases that the employee feels are necessary. There is little need to justify the purposes of the activity nor to be concerned about new programs. On-going projects receive priority.

Background and History of ZBB

The United States Department of Agriculture (USDA) established the first formalized ZBB system in 1964, but the process was largely unsuccessful for several reasons: Objectives were poorly defined and procedures were inadequately explained; the USDA employees were very defensive about their work and were unwilling to earmark any of their projects at lower than top priority. As a result the ZBB system was discontinued after only one cycle.

The present form of ZBB was instituted at Texas Instruments in 1969 and was applied in staff and research units of the company that comprised approximately 25 percent of Texas Instruments' annual expenditures. All of the costs in these areas were considered discretionary. Texas Instruments has continued to use ZBB since then, and the company is reportedly very pleased with the results.

The most publicized ZBB system currently in use was installed in Georgia during 1972 under Governor Jimmy Carter. The system suffered a number of problems during its initial stages. Planning prior to implementation was inadequate, cost data were insufficient, and instructions for applying the process were incomplete, thus very little reallocation of resources occurred. Most programs were funded at the same or higher levels as they were previously. Adjustments were made to assure its successful use, however, and ZBB has continued in Georgia.

President Carter installed ZBB in the federal government when he took office in 1976. Many of the problems encountered in Georgia also occurred in Washington, D. C. The initial planning and instructions were inadequate, and as a result, government employees were not favorable toward ZBB in practice. However, they were favorable toward the theoretical concepts of ZBB and believed the system should be continued in a revised form.

Many corporations have applied ZBB including Xerox, Westinghouse, Magnavox, Southern California Edison, United California Bank, and others. A number of states including Arkansas, California, Idaho, Illinois, Missouri, Montana, New Jersey, and Texas have also adopted ZBB.

Salt River Project (SRP) adopted ZBB in 1977 for three of their seven departments: Operations Services, Financial Services, and the General Manager's Staff Group. All three provide staff functions. Initially the three departments applied the technique to determine where they stood at that point in time. Then they applied ZBB for the 1978 budget.

The Arizona Department of Transportation (ADOT) also adopted ZBB in 1977. During that year the system was tested in the Administrative Services Division. In 1978 ZBB was applied in all of the Department's six divisions.

ZBB Procedures

ZBB utilizes a number of techniques to integrate planning, budgeting, and review processes and normally includes the following steps:

Identifying the organization's structure and objectives. In the first step, major objectives are agreed upon by those in leadership positions. Top management attempts to answer such basic questions as, Where is the company now? Where is it going in its present direction? and Where does top management want it to go in the future? Agreement will bring expectations about ZBB's goals into focus and make it easier to explain to lower-level managers what is expected of them.

Identifying decision units and preparing decision packages. In the second step, the decision units are selected. Decision units represent groups of activities for which a single manager has responsibility. There is no single approach to identifying decision units and in fact they may be identified in different ways in different areas and under different managers. A decision unit may be a traditional cost center. It may also be a research and development project, an accounting staff or a computer service department. The key feature of a decision unit is that there should be a measurable result obtained from the resources and committed to the unit.

Lower and middle-level managers are normally in charge of decision units. They have the task of preparing the primary budget document in the ZBB process — the decision package (DP). Each decision package "identifies a discrete activity, function, or operation in a definitive manner for management evaluation and comparison with other activities."[2] The purpose of these decision packages is to communicate cost and benefit information of alternative programs and alternative levels of funding to top management.

Reviewing and ranking decision packages in view of objectives. "Ranking is a process by which managers array programs or activity levels (as shown in decision packages) in decreasing order of priority. This ranking process identifies the relative priority assigned to each decision package increment contained in the manager's budget request based on the benefits to be gained or the consequences of various spending levels."[3] Thus, individuals at each level of the organization's hierarchy review the DPs and rank them for funding decisions. Rankingisdescribedinmoredetaillaterinthisarticle.

Submitting the budget. In the last step, the budget is prepared and submitted. If the ZBB process has been successful, resources will have been reallocated, marginal programs eliminated and new programs funded.

Advantages and Drawbacks of ZBB

In general, ZBB improves and refines an employee's approach to budgeting. The technique encourages individuals to integrate their thinking about budget planning and preparation. ZBB changes an employee's state of mind during the preparation process by encouraging creative thinking and development of new approaches to the activities. In this technique, the employee becomes mentally involved in budgeting, rather than simply going through the motions of adjusting the previous year's figures upward.

Advantages. Several specific advantages should be noted: First, ZBB increases participation by lower-level managers in the budgeting process. ZBB has become known as a "bottom-up" strategy because it deeply involves lower-level managers in preparing the budget. They prepare DPs for their activities and develop the basic elements of the budget. These individuals are responsible for justifying their activities and the funding levels they believe are needed. SRP found that people who had never been involved in budgeting before were willing and eager to participate. ADOT employees who were new to the budget process also were very interested in being involved.

ZBB also increases communication across management levels. The participation of lower-level managers in the budgetary process increases communication within the managerial hierarchy. The ZBB process requires that individuals at different levels spend more time discussing their common activities and reaching agreement regarding the objectives and requirements of these activities. Both SRP and ADOT felt that ZBB improved communications; however, there were some problems. A few managers in each organization were hesitant to discuss their budgets with subordinates. In addition, a number of subordinates did not want to get involved. As one individual said, "Budgeting is my boss's job, not mine. I've got more important things to do."

In addition, ZBB encourages greater commitment to the budgeted amounts. The ZBB process motivates lower-level managers toward a greater commitment to their work. Being a part of the planning and budget process rather than merely a recipient of its end result, the lower-level managers have a stronger desire to match the budget requirements and thus tend to work harder toward achieving its goals. Individuals at both SRP and ADOT felt that this was the case.

Another advantage is that ZBB improves documentation of standards and the quality of information available for decision-making. Because the ZBB process stresses substantiation for budget requests, it generates greater documentation for the standards that are established. ZBB thus improves the quality of information available for its users and helps establish a review and evaluation procedure that can reallocate resources from less productive programs.

Finally, ZBB makes the planning process more flexible. ZBB requires that managers spend a great deal of time prior to the preparation of their budget requests to develop alternative methods of completing their activities. These alternatives provide flexibility if funding levels change during the planning or implementation stages.

Disadvantages. A number of drawbacks have also been encountered in applying ZBB. One is that the system involves extensive time and paperwork for each individual involved. Justifying programs and developing alternative approaches may be new activities for a manager who may be spending much more time with budgeting than before. This is particularly true in the first year of a ZBB system. The manager also will find that the amount of paperwork increases. DPs require more documentation than traditional budget requests. As the budget director at SRP stated, "Plain and simple, the biggest disadvantage is the paperwork. This is particularly true when going up the chain of command. When you break DPs down into various levels of effort (the 80 percent, 90 percent concept), you add additional packages at all levels of the organization, so when you have a lot of people working for you, you create a great deal of paperwork."

Another disadvantage is that ZBB is not appropriate to all departments or activities. It is not applicable to basic production operations or to areas that include significant amounts of nondiscretionary costs but is best suited for staff activities that fulfill support functions such as research and development, data processing, personnel, finance and accounting, industrial engineering, and maintenance. For example, while ADOT was able to use ZBB in all divisions, SRP was not. SRP could not apply ZBB concepts to the fuel area due to the nature of the customer demand for fuel. These are nondiscretionary costs.

In addition, ZBB may meet with resistance from personnel who must apply the technique: it is a different approach for most personnel; it requires that they take a hard look at their activities and face some difficult challenges. As a consequence, personnel may resist the change and attempt to circumvent ZBB's requirements. Both SRP and ADOT expressed concern about this problem, but they were able to deal with it satisfactorily. As the SRP budget director stated, "People are very comfortable in their jobs but as soon as you do something drastically different, especially if you're going to make them do more work or look at things they haven't looked at before, you're going to have a little anxiety. You can tell them this is going to happen and work with it."

Personnel also may find some of the procedures unrealistic. ZBB requires that minimum levels of effort be established for each DP, but sometimes personnel have found it difficult to establish those minimum levels without guidance from their superiors. Ranking at times also has proven to be a problem without a set of criteria for assistance. Both organizations expressed concern over the difficulty in completing the ranking process; however, both found that establishing minimum as well as other levels of service was a very enlightening experience.

Once top management people develop a basic understanding of how ZBB works, they should know whether they want to consider ZBB further. If they decide to give additional thought to a ZBB system, they should encourage all other managers in the organization to learn about ZBB, too. Top management then can engage in an open discussion with the other managers about the possibilities for ZBB. The technique cannot succeed without enthusiastic support and encouragement from top management. It also cannot succeed without the other managers being genuinely supportive. Therefore top management should discuss ZBB and agree in principle on whatever decision is reached.

THE INITIATING STAGE

To initiate a ZBB system, two important activities must be conducted: First, the objectives must be established for the organization and for the ZBB system. Second, top management must train the other employees who will implement the system. A great deal of time should be spent in these two activities. The ZBB process ultimately may succeed or fail based on the way in which it was initiated. Clearly stated objectives will help make the system work smoothly by telling employees what they should accomplish and by giving direction to their efforts. Training will prepare the employees for the new system, help to develop a favorable attitude toward ZBB, and help minimize resistance to the new system.

Establishing Objectives

Top management should clarify the organization's objectives for the ZBB system before it is implemented. This effort provides a link with the organization's current management system and helps lay the foundation for the ZBB process at the operational level. Top level managers should describe the organization's goals and intended output for the system in broad terms; then they should establish reasonable, measurable, and specific objectives that can be achieved within a certain period of time. For example, top management might establish a goal of improving employee relations and benefits. Top management then may set an objective for its medical unit of providing emergency first aid to the company's personnel. The unit may be asked to determine approaches that can adequately care for a certain number of individuals at a time and/or for certain types of injuries and illnesses.

The goals and objectives should be reconciled with those established for the overall management system before additional work on the ZBB technique is done. These efforts then will be handed down to the lower-level managers to provide a focus for activities and to help managers understand the purposes of their decision units and the objectives of the DPs they will prepare.

Both SRP and ADOT intended the ZBB system to help reallocate resources and to save dollars. As ADOT's procedure manual states, ZBB "is a budget procedure designed to help determine the best mixture of output products and services that can be funded within a specified budget ceiling." Both organizations also hoped to provide additional information to management regarding the responsibilities of each department (division).

Training Lower-Level Managers

Training lower-level managers is the most important activity to be performed prior to implementing ZBB. The training should be divided into two distinct phases: mental preparation and procedural instruction.

Mental preparation. Lower-level managers must realize the benefits they will personally derive from ZBB, and they must complete the training with the expectation that ZBB can improve their position in the organization. In other words, lower-level managers must be ready to begin the ZBB process with the belief that it will be in their short-term and long-term best interests to make ZBB work. It is a participative strategy and can be effective only if the lower-level managers have developed a positive attitude toward the new system.

Well-defined objectives also will help lower-level managers identify methods that will point their units in the right direction. Emphasizing lower-level managers' mental attitudes during training can eliminate many difficulties other organizations have suffered in implementing ZBB.

General procedural instructions. A number of general procedures should be clearly established to make the transition to ZBB move smoothly. First, the decision units should be identified and the individuals responsible for completing DPs should be selected. Employees should be aware of their individual responsibilities before ZBB commences.

Second, members of the organization's budget staff should be assigned to the task of observing each individual unit using ZBB. They should act as liaisons to help the units with problems that arise and ease the transition to the new system. The presence of liaisons also demonstrates top management's continued interest in the ZBB process and should encourage the units to give their best efforts.

Third, lower-level managers should be informed about the changes to be made in the accounting information system as ZBB is implemented. ZBB requires a program accounting system that reports costs, revenues, and other performance data for each decision unit. The flexible budget and cost behavior formulae envisioned in this type of accounting system may be different from those used previously. Lower-level managers should be assured that the liaisons will provide assistance in developing the new information.

Specific procedural instructions. Those implementing ZBB systems also must be taught how to prepare DPs and how to complete the ranking process. Clear and complete instructions can help to maintain a smooth ZBB process.

DPs are formulated in two ways; the nature of the activities will determine which approach is preferable. One approach is to prepare *alternative* DPs that offer mutually exclusive methods of performing the same function. Most organizations encourage decision unit managers to prepare a number of mutually exclusive packages. Managers are expected to choose the alternative they prefer and forward it for further review and evaluation. The other alternatives are retained in case circumstances warrant their consideration at a later time. For example, a company might discuss alternative approaches to maintaining their accounting records.

The company may consider a large-scale computer installation, a mini-computer, programmable calculators, bookkeeping machines or manual maintenance.

The other approach is to prepare *incremental* packages that identify sequential levels of effort and funding for a given function. Most incremental packages include at least three levels of effort: the minimum level below which the activity cannot be reduced without destroying its effectiveness, the current level of effort and funding, and increments above the current level that amplify the present approach to the activity. In many cases, more than one increment above the current level are considered. For example, once a company has chosen a method of keeping their accounting records (through preparation of alternative DPs) they would examine various applications: financial accounting, payroll, receivables and payables, etc.

Both SRP and ADOT emphasized the procedural aspects of training. Each organization prepared a manual that was distributed to all employees who were to be involved with the ZBB system. The manuals briefly described the purposes of the ZBB system and explained in detail the methods that were applied to operationalize it. Training programs also were held. They were primarily question-and-answer sessions and did not stress mental preparation. Both organizations were quite satisfied with their training approaches and felt their employees were adequately prepared to use ZBB.

Form

Regardless of the method of formulation, the form of the DPs should be the same. DP forms used by the SRP and ADOT are included as Figures I and II respectively. The DPs should contain at least the following six sections, although exact terminology and order of presentation may vary from one organization to another:

Title. This identifies the specific DP, suggests the level of effort, and indicates the name of the preparer and the decision unit.

Description/objectives. This section indicates the "what, how and why" of the activity. It is important that the objectives be stated clearly and succinctly. The purpose of the activity and its relationship to the organization also should be identified.

Benefits. This section should describe the quantitative as well as the qualitative benefits of the activity. The quantitative benefits should be stated as explicitly as possible. Measures of performance should be described as well, particularly if the measures have been used infrequently in the organization.

Impact (consequences) of not funding. It is not necessary to explain that the benefits described previously will be lost. Instead this section should discuss the effect upon related activities and how those activities might be changed as a result. This section can help management understand the trade-offs involved in their decision.

Revenues and costs (resource requirements). Information on previous revenues and costs, current funding levels, and future requests should be included in this section.

Alternative approaches. This section should refer briefly to alternative DPs or to other incremental effort levels.

Ranking

The ranking process involves a number of organizational questions that must be answered. Each question must be answered for the ranking process to be completed satisfactorily.

Who should do the ranking? At the decision unit level, the individual manager should rank the DPs. However, as DPs are forwarded up the organizational hierarchy, the number of packages can become excessive for one individual. It is advisable to establish a committee of managers to conduct the ranking process. If possible, at least one manager on every committee should be familiar with each DP that is discussed and should be able to provide insight as to priority.

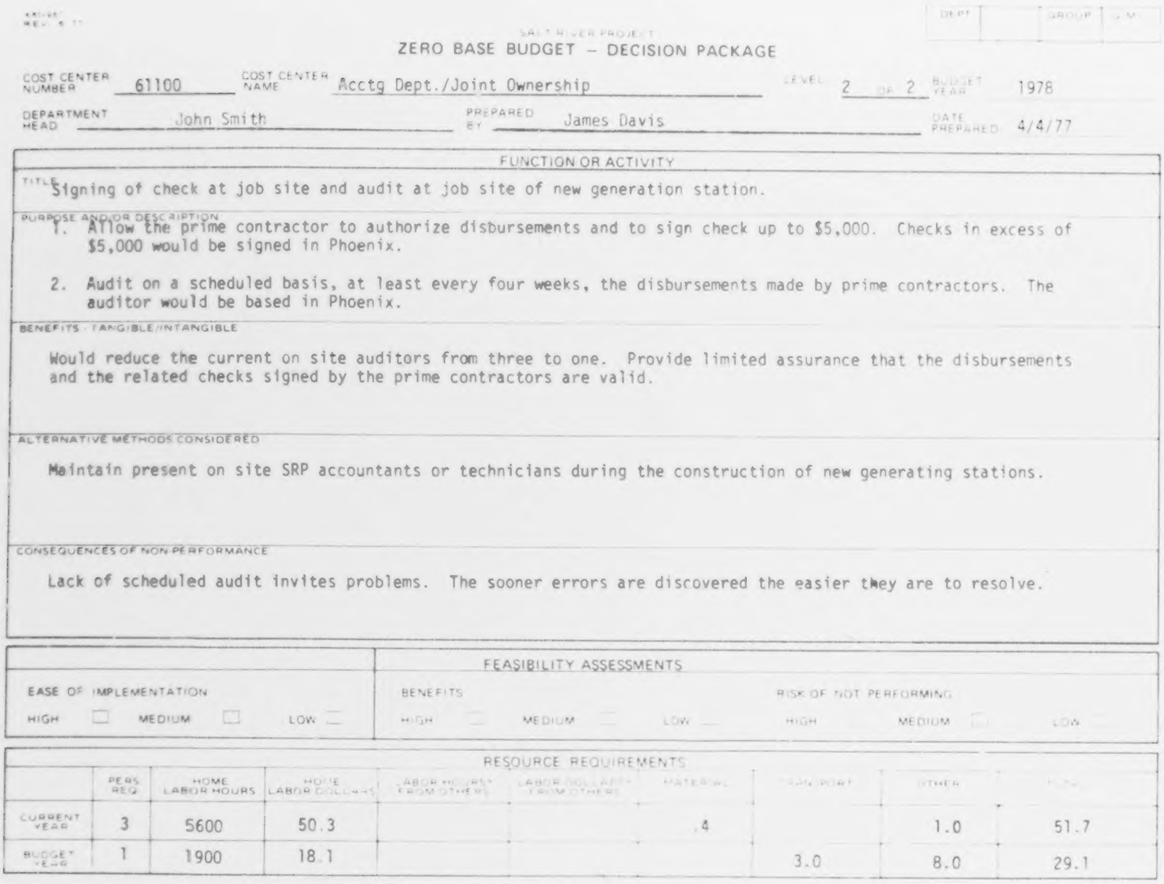
ADOT established three levels in their hierarchy. Most DPs were prepared at the lowest level. The assistant directors, who composed the middle level, completed the first ranking with the aid of their immediate staff. The highest level — the director, the deputy director, and a number of individuals from their staff — completed the final ranking. SRP established four levels and followed a similar process.

What standard should be applied? Establishing a standard as a basis for ranking is a difficult undertaking. Three approaches are discussed, but many variations of these three are used in practice.

The first approach is to use a single standard. This is the simplest and most straightforward approach. All DPs are evaluated by one criterion, such as return on investment, net present value, or cost-benefit ratios. A single standard is most appropriate for DPs that are similar.

FIGURE 1

ZERO BASE BUDGETING FORM: SALT RIVER PROJECT



DEPT		GROUP	G.M.

SALT RIVER PROJECT

ZERO BASE BUDGET – DECISION PACKAGE

COST CENTER NUMBER 61100 COST CENTER NAME Acctg Dept./Joint Ownership LEVEL 2 OF 2 BUDGET YEAR 1978

DEPARTMENT HEAD John Smith PREPARED BY James Davis DATE PREPARED 4/4/77

FUNCTION OR ACTIVITY

TITLE Signing of check at job site and audit at job site of new generation station.

PURPOSE AND/OR DESCRIPTION

1. Allow the prime contractor to authorize disbursements and to sign check up to $5,000. Checks in excess of $5,000 would be signed in Phoenix.
2. Audit on a scheduled basis, at least every four weeks, the disbursements made by prime contractors. The auditor would be based in Phoenix.

BENEFITS - TANGIBLE/INTANGIBLE

Would reduce the current on site auditors from three to one. Provide limited assurance that the disbursements and the related checks signed by the prime contractors are valid.

ALTERNATIVE METHODS CONSIDERED

Maintain present on site SRP accountants or technicians during the construction of new generating stations.

CONSEQUENCES OF NON PERFORMANCE

Lack of scheduled audit invites problems. The sooner errors are discovered the easier they are to resolve.

FEASIBILITY ASSESSMENTS

EASE OF IMPLEMENTATION

HIGH ☐ MEDIUM ☐ LOW ☐

BENEFITS

HIGH ☐ MEDIUM ☐ LOW ☐

RISK OF NOT PERFORMING

HIGH ☐ MEDIUM ☐ LOW ☐

RESOURCE REQUIREMENTS

	PERS REQ	HOME LABOR HOURS	HOME LABOR DOLLARS	LABOR HOURS* FROM OTHERS	LABOR DOLLARS* FROM OTHERS	MATERIAL	TRANSPORT	OTHER	TOTAL
CURRENT YEAR	3	5600	50.3			.4		1.0	51.7
BUDGET YEAR	1	1900	18.1				3.0	8.0	29.1

* MUST EQUAL LABOR HOURS AND DOLLARS SHOWN ON BACK OF FORM

Source: Form used with permission of the Salt River Project

The second approach is voting in which each individual records one vote on a fixed point value scale. The ranking is decided on the basis of either total or average points for each DP.

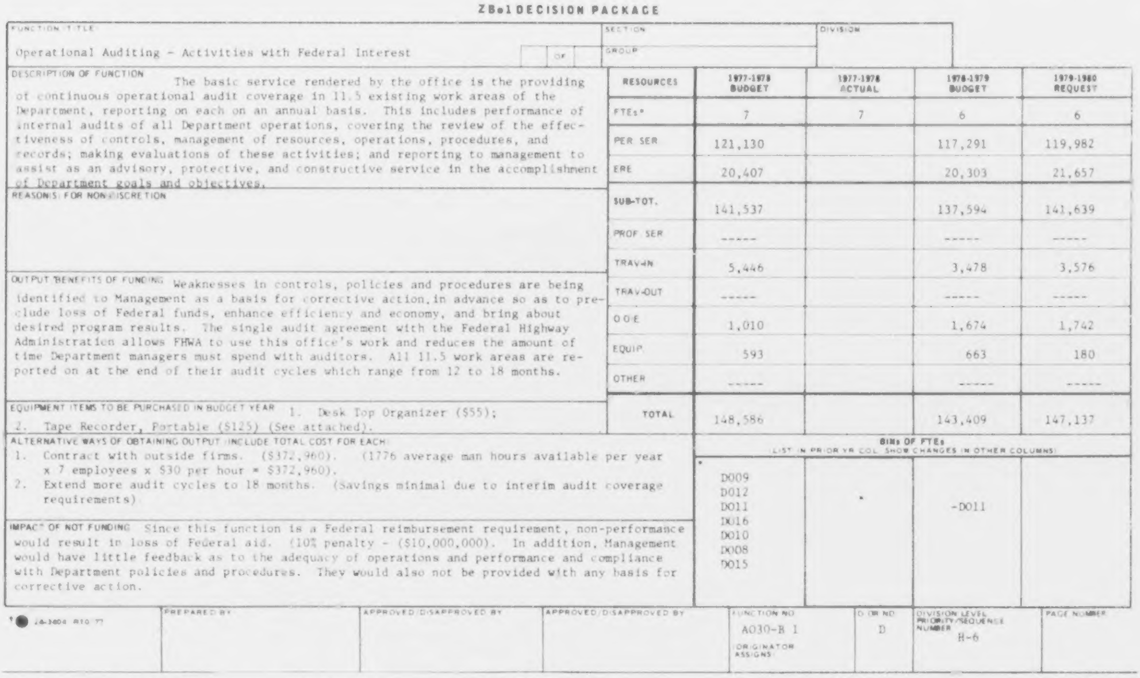
The third approach is to use major categories. Each individual records one vote on each of several criteria (which may have equal or weighted point values). The categories may include but are not limited to activities legally required, time required for efforts to pay for themselves, efforts of long-term benefit and similar criteria.

ADOT found it difficult to formulate explicit quantitative standards; therefore, they intuitively applied a cost-benefit approach. SRP, on the other hand, initially established a composite scheme using three major categories: ease of implementation, benefits, and risks of not performing the function. Each category included a number of subscales with point values assigned to each. Individuals in the middle and upper management levels found the scheme difficult to apply, so the ranking approach was discarded. An informal cost-benefit analysis was used instead.

Which DPs should be reviewed in detail? Because of the amount of time involved, it is difficult to review each DP in detail. Therefore, an organization must develop a method for determining which DPs should be carefully analyzed. Usually a cutoff expenditure point is established at each organization level based on

FIGURE II

ZERO BASE BUDGETING FORM: ARIZONA DEPARTMENT OF TRANSPORTATION



ZBe1 DECISION PACKAGE

FUNCTION TITLE: Operational Auditing - Activities with Federal Interest

☐ OF ☐

SECTION:

GROUP:

DIVISION:

DESCRIPTION OF FUNCTION: The basic service rendered by the office is the providing of continuous operational audit coverage in 11.5 existing work areas of the Department, reporting on each on an annual basis. This includes performance of internal audits of all Department operations, covering the review of the effectiveness of controls, management of resources, operations, procedures, and records; making evaluations of these activities; and reporting to management to assist as an advisory, protective, and constructive service in the accomplishment of Department goals and objectives.

REASON(S) FOR NON-DISCRETION:

OUTPUT/BENEFITS OF FUNDING: Weaknesses in controls, policies and procedures are being identified to Management as a basis for corrective action, in advance so as to preclude loss of Federal funds, enhance efficiency and economy, and bring about desired program results. The single audit agreement with the Federal Highway Administration allows FHWA to use this office's work and reduces the amount of time Department managers must spend with auditors. All 11.5 work areas are reported on at the end of their audit cycles which range from 12 to 18 months.

EQUIPMENT ITEMS TO BE PURCHASED IN BUDGET YEAR: 1. Desk Top Organizer ($55); 2. Tape Recorder, Portable ($125) (See attached).

ALTERNATIVE WAYS OF OBTAINING OUTPUT (INCLUDE TOTAL COST FOR EACH):

1. Contract with outside firms. ($372,960). (1776 average man hours available per year x 7 employees x $30 per hour = $372,960).
2. Extend more audit cycles to 18 months. (Savings minimal due to interim audit coverage requirements)

IMPACT OF NOT FUNDING: Since this function is a Federal reimbursement requirement, non-performance would result in loss of Federal aid. (10% penalty - ($10,000,000)). In addition, Management would have little feedback as to the adequacy of operations and performance and compliance with Department policies and procedures. They would also not be provided with any basis for corrective action.

RESOURCES	1977-1978 BUDGET	1977-1978 ACTUAL	1978-1979 BUDGET	1979-1980 REQUEST
FTEs*	7	7	6	6
PER SER	121,130		117,291	119,982
ERE	20,407		20,303	21,657
SUB-TOT.	141,537		137,594	141,639
PROF SER	-----		-----	-----
TRAV-IN	5,446		3,478	3,576
TRAV-OUT	-----		-----	-----
O.O.E.	1,010		1,674	1,742
EQUIP	593		663	180
OTHER	-----		-----	-----
TOTAL	148,586		143,409	147,137
*BINs OF FTEs (LIST IN PRIOR YR COL. SHOW CHANGES IN OTHER COLUMNS)	D009 D012 D011 D016 D010 D008 D015		-D011	

	PREPARED BY	APPROVED/DISAPPROVED BY	APPROVED/DISAPPROVED BY	FUNCTION NO (ORIGINATOR ASSIGNS)	D OR ND	DIVISION LEVEL PRIORITY/SEQUENCE NUMBER	PAGE NUMBER
24-3404 R10/77				A030-B 1	D	H-6	

Source: Form used with permission of Arizona Department of Transportation.

absolute dollar amounts for a percentage of current levels to actual expenditures. Expenditures below this point are listed and displayed for each organization level to observe but are not analyzed to any great extent. These expenditures should cover the minimum level of performance for acceptable continuing new programs. The ranking process then can concentrate on DPs with marginal priority.

Lower-level managers at SRP and ADOT analyzed all DPs in detail. At the upper levels no specific cutoff points were established. Individuals at these levels in both organizations examined DPs in detail only if they were ranked in the bottom 25 to 30 percent.

THE MONITORING STAGE

Once the ZBB system is in operation, it should be monitored to determine whether it is accomplishing its purposes and objectives. Top management should investigate several aspects of the ZBB process: First, they should determine whether the procedures that were developed are being applied correctly. Second, they should determine whether lower-level managers have retained their favorable attitudes toward ZBB. Third, top management should determine whether information regarding the end results of the ZBB process is relayed to the decision unit managers.

Use of Procedures

The liaisons from the budget administration group can help to assure that procedures are being applied correctly. The liaisons should provide a procedure manual that can aid managers in preparing DPs and in conducting the ranking process. The manual should answer many of the routine questions that might be asked and promote uniformity in the lower-level managers' efforts. The liaisons can also assist the managers with any unusual problems that arise. In addition, the liaisons can review DPs before they are referred to the ranking process to determine if they have been completed properly. Liaisons at SRP and ADOT provided these services.

Attitudes about ZBB

Because ZBB is a participative strategy, favorable attitudes are important for the effectiveness of the process. Much of the training prior to commencing ZBB is concerned with educating employees in order to develop positive attitudes, a concern that must continue once ZBB is begun.

Several techniques might be used for this purpose. First, top management and/or the budget administration group can discuss ZBB with lower-level managers asking for reactions to the new system. The discussions should indicate management's continued interest in ZBB and its successful use in the organization. However, lower-level managers may find it difficult to be candid with their superiors and may fear possible recriminations if they express negative attitudes.

Thus, a more formal approach may provide more useful information: A short questionnaire, designed to elicit responses anonymously, can offer much of the same type of information that would come from open discussions while minimizing individuals' concerns about expressing negative attitudes. A questionnaire also can reach more people than can the discussion approach yet still indicate top management's interest in the ZBB process. If management finds that attitudes are moving in an unfavorable direction, they will be able to investigate and develop lines of communication that will counter misinformation and lack of understanding.

Neither SRP nor ADOT made formal attempts to determine the attitudes of those involved with ZBB, but through informal investigations they found that, in general, the attitudes were quite positive. Both organizations felt, however, that more formal examinations of attitudes would prove useful.

Feedback

Lower-level managers will spend a great deal of time working on the ZBB process, and for many of them involvement with the budgeting process will be a new activity. Therefore, it is important that they receive response on the results of their efforts. They need to know whether the procedural aspects of the process were correct so they can revise their actions in the future ZBB cycles.

Lower-level managers also need to know the decisions that ultimately were made regarding their DPs and the final rankings. The final form of the budget conceivably may obscure the exact funding of various programs, and lower-level managers may be unable to determine from the final budget how well they fared. Consequently they may be uncertain how to proceed when the ZBB process begins again. They also may feel their efforts were not really given serious consideration and may develop negative attitudes toward ZBB. Therefore, it is extremely important that lower-level managers be assured they will receive complete reports on the results of the ZBB process. Then top management must fulfill that promise. At SRP this feedback occurred informally. At ADOT, because ZBB results were converted to traditional line-item budgets to meet state budgeting requirements, it was difficult to provide specific feedback.

CONCLUSIONS

Once top management has completed the preliminary stages in the process of considering a ZBB system, and has a basic understanding of what the technique can do, they will have reached a point where they should ask whether ZBB is appropriate for their organization. They must decide whether the advantages that ZBB offers would really be beneficial to their particular organization, and they also must consider whether their organization will be able to overcome ZBB's possible drawbacks. In short, they must consider the broad nature of ZBB and relate it to the specifics of their organization.

If they believe ZBB can be beneficial for them, they must carefully examine the requirements of the initiating and monitoring stages. This examination is vital because of the extent of time and effort required to make ZBB work effectively. Many organizations that have been disappointed with ZBB have spent too little time analyzing what it takes to develop a successful system. In the long run the additional efforts expended in reviewing the requirements for a ZBB process will pay off.

ADOT found ZBB useful, particularly at the lower and middle levels of management and they continued using ZBB. On the other hand, SRP discontinued using a formal ZBB system. Instead they integrated certain elements into their traditional budgeting system. SRP felt that ZBB increased involvement in the budgeting process, standardized budget input, and clearly distinguished potential levels of service. As the Budget Director explained, "We took the best parts of ZBB and put it into our budget system." He is satisfied that they have the best of what ZBB can offer them.

Overall when considering a ZBB system, the greatest thought should be given to the lower-level managers who will implement the technique, for they are the individuals who will make or break ZBB. Top management should work diligently to assure that these managers will accept and operate a ZBB system effectively. With the cooperation and hard work of all concerned, ZBB can enhance the effectiveness of most organizations.[5]

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[1] Peter C. Sarant, *Zero-Base Budgeting in the Public Sector. A Pragmatic Approach*, Addison-Wesley Publishing Co. (Reading, Massachusetts, 1978), p. 3.

[2] Peter A. Pyhrr, *Zero-Base Budgeting*, John Wiley and Sons, Inc. (New York, 1973), p. 6.

[3] Sarant, p. 102.

[4] Forms used with permission of Salt River Project and Arizona Department of Transportation.

[5] The author gratefully acknowledges the advice and assistance of W. J. Conly, Budget Director of the Salt River Project, and A. A. Lidberg, Budget Analyst of the Arizona Department of Transportation. The author, however, accepts sole responsibility for the content.

Doctoral Dissertation Abstract

COLLEGE OF BUSINESS ADMINISTRATION
ARIZONA STATE UNIVERSITY

Editor's Note: *Our readers are often interested in research undertaken by doctoral candidates in the College of Business Administration at Arizona State University. Therefore, we occasionally include one or two abstracts of doctoral dissertations in* Arizona Business. *Readers who wish further information on any of these subjects may examine the complete dissertations in the ASU Hayden Library.*

AN EMPIRICAL ANALYSIS OF THE AGGREGATE PREFERENCE STRUCTURE FOR THE DISTRIBUTION OF EARNINGS BY FIRMS

Bill McDonald

Understanding the effects of the various methods of distributing earnings is essential to a firm's management, assuming management's goal is to maximize shareholder wealth. Basically, the problem is to determine whether investors are indifferent to receiving earnings in the form of dividends or indirectly through the retention of earnings. If shareholders, as a whole, are not indifferent to the type of earnings distribution, then it becomes important to determine the nature of their aggregate preferences as revealed in the market.

This study examines the nature of the aggregate preference structure for the distribution of earnings by extending existing methodologies to a dynamic model. The sample used in the study consists of 103 widely held firms observed over 20 semiannual periods from 1968 to 1977. The final model tested in the study allows preferences to be observed in the context of other economic variables. A series of step-wise tests is incorporated to support the final model. The fully specified model includes error components, adjunct variables in a multiplicative form, and a generalized functional form transformation.

The results of this research suggest that the aggregate preferences for the distribution of earnings are dynamic and depend on the relative level of other factors. All of the adjunct variables selected for inclusion in the model — risk, growth, and market environment — were found to have a significant impact on the level of preferences. In each case, the direction of effect was consistent with intuitive positions of those supporting dividend relevance. For the aggregate sample, the market is shown to be in disequilibrium, with investors, in general, preferring firms to retain more of their earnings.

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Homeowner Warranties: Implications for Buyers and Builders

MARIANNE JENNINGS

For most Americans, the purchase of a home is the single largest investment of a lifetime. This investment means that about 30 percent of a family's disposable income will be used to make monthly payments on the home.[1] These substantial expenditures are being made by more and more Americans each year. In 1977, 820,000 new homes were purchased, 500,000 homes were built by owners, and 3.6 million previously occupied homes were purchased. Despite the magnitude of the investment and the numbers of Americans who are investing, investors have remained relatively unprotected. The Federal Trade Commission (FTC) estimates that 10 percent of new homes have major defects such as inadequate insulation or faulty plumbing.[2] In a survey of the Department of Housing and Urban Development (HUD), 42 percent of the families surveyed had unexpected repairs in the first two years of ownership costing an average of $500 each, and 11 percent had repair costs of over $1,000. The defects manifested themselves after some occupation in the home, with 55 percent occurring in the first six months and 80 percent occurring in the first year. Such defects cost a total of over $759 million in 1977.[3]

Consumer protection laws have recently been extended to the home-building industry through adoption of the implied warranty theory, which promises consumers that the products they purchase are fit for ordinary purposes.

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It is important to note, however, that HUD and other federal agencies hear only of buyer complaints and not of buyer satisfaction. Many homeowners are well satisfied with their purchase and their builder. A recent Arizona survey of new homebuyers indicates that 71 percent of them would purchase another home by the same builder and 74 percent would recommend the builder to others.[4]

Caveat emptor has been the philosophy of the courts and legislatures in challenges by buyers on the quality of their home construction. However, with the advent of consumerism, even this long-standing philosophy is beginning to suffer the consequences of new theories for home buyer protection. In the late 1960s, courts began to develop means for buyers to recover damages when foundations sank, roofs leaked, and plaster cracked. The purpose of this article is to discuss the change in the law on new home defects from *caveat emptor* to the current protective provisions now afforded home buyers and the effects of these protections on the homebuilding industry.

TRADITIONAL THEORIES

The doctrine of *caveat emptor* or "let the buyer beware" originally applied to real property purchases. In sixteenth century England the courts felt that a buyer had opportunities to inspect the potential purchase before closing, and defects could thus be located and corrected. The buyer's failure to inspect the property constituted a waiver of his right to correction. This notion of responsibility on the buyer also existed in the sale of goods. Problems with homes or goods, once the sale had occurred, left the buyer without remedy. Although in retrospect the doctrine seems harsh, it was a notion engrained in the legal system for over 300 years.

This doctrine of *caveat emptor* was fortified by another common law doctrine that was just as aged — the doctrine of merger. The doctrine, simply stated, is that once the buyer has received the deed transferring the property to him, any rights or duties that were in the sales contract but are not in the deed are lost. Most standard real estate contract forms contain some warranties on "workmanlike" construction. However, since the deed would contain no promises or warranties regarding construction of the home, delivery of the deed would serve to waive the buyer's rights for contractual breach. The effect of the doctrine of merger is to prevent buyers from recovering damages where a contractual promise on construction was part of the original bargain.[7] The reason for the doctrine was to prevent recovery by buyers in reliance upon over zealous salespersons' statements. Any such statements are merged upon delivery of the deed, with the unfortunate side effect of all other promises being merged.

These traditional doctrines presented substantial barriers to those attempting recovery, and both the judiciary and the legislative branches recognized the need for some buyer protection. In spite of the recognition of need, protection for buyers had developed conservatively and slowly.

FEDERAL, STATE AND LOCAL REGULATIONS

Attempts to assist the home purchaser have been varied in approach and effect; on the local level, building codes have been enacted to ensure builder compliance with health and safety regulations and with certain minimum construction standards. State and local building codes regulate construction, electrical systems, plumbing, heating, mechanical, energy, fire safety, fire prevention and gas installation. These codes are based, for the most part, on "model" codes written by private groups: The International Association of Plumbing and Mechanical Officials drafted the *Uniform Plumbing Code*; and the National Fire Protection Association drafted the *National Electrical Code*. The result of this proliferation of codes and code provisions has been increasingly strict and complex regulation.

An inevitable result of such regulation is an increase in cost to both builder and buyer — often an excessive increase. These cost increases were protested by consumers and builders, and Congress reacted with the Housing Act of 1949. Under the act, urban renewal grant decisions were made after the Department of Housing and Urban Development (HUD) determined whether the locality applying had encouraged housing cost reductions through the use of new materials and techniques and through elimination of restrictive code provisions. HUD was able to eliminate restrictive provisions in approximately 4,000 localities' codes until their power to do so was revoked in 1974.[8] The original idea was to lessen buyer protection to reduce costs; but since the 1974 revocation, HUD has avoided construction regulations with the exception of FHA and VA mortgage insurance requirements. HUD's aversion to regulation stems from the construction industry's reluctance to provide warranties or promises on quality construction. A HUD report on housing stated:

> Normally, consumer protections involve some additional burdens on the lender, builder or the manager of the housing. Thus, builders have objected as to the existing requirement that they give the home purchaser a warranty against structural defects . . . . These and many other mortgage insurance requirements bear on whether a sponsor decides to use [mortgage] insurance, that affects production. Therefore, any proposed legislation for additional consumer protection or other benefits [for FHA houses alone] must be weighed against its possible curtailment of the use of the program.

The fear of desertion by builders has left HUD with the limited consumer protection for FHA buyers. This fear is also evidenced in HUD's reluctance to enforce a section of the National Housing Act. Section 518(a) of the act allows federal reimbursement to FHA homebuyers whose homes have structural defects.[10] Complaints have been received from attorneys across the country and other federal agencies on HUD's lack of enforcement.[11]

PRIVATE ACTION

Regulation has come from the builder-vendors themselves through the National Association of Homebuilders which developed its Home Owners Warranty program (HOW). The HOW program offers a method for settling claims and also offers insurance for builders who do not pay off valid claims. HOW covered 136,000 new homes of the 820,000 sold in 1977 at a cost of $2.00 per thousand of home value, and in 1978 HOW covered 440,000 homes worth over $22 billion.[12] The effectiveness of HOW, however, is limited by the number of builders who subscribe.

A survey by a building magazine indicates that 79 percent of home buyers think a warranty is important while only 22 percent of the builders think such a guarantee is important.[13] A similar survey of the

Phoenix area showed that 61 percent of new-home buyers and 77 percent of the general public think a warranty is important.[14] Private action to enforce these warranties has been taken by individual builders both in the quality of construction and in follow-up repair. According to the Phoenix area survey, 59 percent of the new-home buyers surveyed were satisfied or very satisfied with the quality of materials and 71 percent were satisfied with the builder's warranty protection.[15]

These attempts to relieve home buyers are not universal in their coverage, however, and not always strong in their enforcement. The absence of effective public or private regulation sent the issue to the courts, resulting in legal remedies for affected homeowners.

Implied Warranty Theories

The void that exists through application of the common law and through lack of statutory and private remedies is being filled by laws that adopt the implied warranty theory, which basically promises consumers that the products they purchase are fit for ordinary purposes. This theory for the protection of home buyers is not a new one — it has existed in a different form under the Uniform Commercial Code (UCC). Although the code, adopted in virtually all the states, is applicable only to sales of goods, its theories have been carried over into other areas. Section 2-314 of the code gives to purchasers "an implied warranty of merchantability." The definition is as follows:

> Unless excluded or modified, a warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind.[16]

The limitation on applicability to merchants is significant and the term is defined in section 2-104:

> "Merchant" means a person who deals in goods of the kind or otherwise by his occupation holds himself out as having knowledge or skill peculiar to the practices or goods involved in the transaction or to whom such knowledge or skill may be attributed by his employment of an agent or broker or other intermediary who by his occupation holds himself out as having such knowledge or skill.[17]

The application of this warranty to the sales of goods has had widespread effects. Recovery has been awarded for defective designs in cars, shattered glass, broken shoe heels, and other similar problems.

The strength of this notion has been carried over to landlord-tenant law where an implied warranty of habitability has developed. The warranty provides remedies for tenants who lease premises that are in such poor condition as to be uninhabitable. The landlord implies that the premises being leased are fit for human dwelling. Breach of the warranty entitles the tenant to rescind the lease agreement and to have prepaid deposits and rents refunded or the premises made habitable.[18]

With this extension to landlord-tenant, it was just one small step for the courts to apply the implied warranty theory to new housing. The warranty is one of habitability and fitness in new housing and, like its UCC counterpart, appears to apply only to builder-vendors, meaning that the builder-vendor is engaged in the construction business and the sale is commercial. The theory has already been adopted as law in about half the states. Basically stated, the theory holds builder-vendors liable for buyers' losses that result from construction defects. The warranty is not one that would require perfect construction but one that protects against defects that would not occur if reasonable construction methods had been used: waterproof basements under normal conditions, soil dense enough to hold the house, a roof that does not leak under normal conditions.

There are restrictions on application of the implied warranty. The warranty application has a requirement of privity which is a contractual relationship between the home purchaser and the builder. Purchasers of used homes would have no right of action against the builder.[19] Furthermore, the warranty has consistently been applied to single family dwellings and not to commercial construction.

ARIZONA AND THE IMPLIED WARRANTY

Arizona just recently adopted as law the implied warranty of habitability theory in *Columbia Western Corp. v. Vela*.[20] The *Columbia* case dealt with the rights of several homebuyers who found, shortly after purchasing their new homes, that their soil was clay and their homes were sinking, cracking, and suffering other structural defects. These factual circumstances afforded the Court of Appeals the opportunity to consider the implied warranty theory applied by so many other courts. In the case, the plaintiffs, the Velas and the Martinezes, bought homes from Columbia Western Corporation, which was both the builder and seller of the homes that were covered by a Warranty of Completion required for VA financing. That warranty permitted the buyer, through written notice, to claim "substantial nonconformity" to home plans and specifications for a one-year period if defects were to occur. Columbia also provided an extended builder's warranty for an additional year.

Shortly after the plaintiffs purchased their homes, the walls began to crack. Columbia attempted repairs several times, but when repairs proved to be an inadequate solution, the plaintiffs ordered the repairs stopped and had an engineering firm examine their homes and the surrounding homes. The lab report indicated that the clay characteristics of the soil resulted in soil changes and were causing the cracking. The case went to trial, and the plaintiffs were awarded damages to the extent of the cost of repairs plus the decreased value of the property and attorneys' fees.

Columbia appealed, citing *Voight* v. *Ott*[21] for support since in that case, the Arizona Supreme Court held that implied warranties as to quality or condition do not apply to realty. The majority of the Court's opinion is spent distinguishing the *Voight* case from the case under consideration. Their initial observation summarizes the distinction, which is basically the difference between the sale of realty and the construction of realty:

> In our opinion *Voight* is authority for the proposition that no implied warranties arise from the *sale* of realty, but is not dispositive of the issue of implied warranties arising out of the *construction* of new housing which ultimately becomes "realty." (emphasis original)[22]

The Court goes on to point out three Arizona cases in which a contractor has been held to imply that the construction he undertakes, which will ultimately become realty, will be performed in a workmanlike manner. The cases involved an improperly constructed roof on a shed, improperly installed casting in a wall, and an improperly installed electrical system in a brick kiln. Although the cases do not deal squarely with the issue of builder-developer warranty, the court cites them arguably as cases in which a warranty was extended to realty and took the step so many other jurisdictions have taken to provide protection for buyers.

> "Since World War II, homes have been built in tremendous numbers. There have come into being developer-builders operating on a large scale. Many firms and persons, large and small operators, hold themselves out as skilled in home construction and are in the business of building and selling to individual owners. Developers contract with builders to construct for resale. Building construction by modern methods is complex and intertwined with governmental codes and regulations. The ordinary home buyer is not in a position, by skill or training, to discover defects lurking in the plumbing, the electric wiring, the structure itself, all of which is usually covered up and not open for inspection."[23]

The Court then held that on new-home construction, the builder-vendor implies and thus warrants that the construction was done in a workmanlike manner and that the structure is habitable.

IMPLICATIONS AND EFFECTS

This new theory, which has been adopted as law in many states, has provided buyers with a means of recovery — the cost of which must be absorbed by someone, although the comfort of shifting expensive repairs to builders or insurance companies is short-lived since ultimately the cost of these repairs will be paid by the home buyer in the cost of a new home. However, warranties can also have an impact in providing incentives for builders to take precautions to ensure suitable construction.[24]

With the adoption of protection comes the issue of whether these protective rights or warranties can be disclaimed in the construction contract. Under the Uniform Commercial Code, the implied warranty of merchantability can be disclaimed by specific language such as "as is," "with all faults," or "there is no warranty of merchantability." Indeed such attempts have been made, but so far have been unsuccessful. In *City of Philadelphia* v. *Page*,[25] an attempted disclaimer was held invalid with the Court finding that such disclaimers would be valid only if conspicuously and clearly stated and intended by the parties.

Difficulties also arise from time limitations on the implied warranty and from inadequate communication of the proper steps for a buyer to take in the event a defect is discovered. The difficulties in home warranties have caught the attention of the Federal Trade Commission, and in January, 1979, Commissioner Dole noted at the annual convention of the National Association of Home Builders that the patience of consumers is "rapidly running out." Dole's statements indicated to the industry that a crackdown was coming and that the Home Owners Warranty program should be expanded.[26]

Faced with these new buyer protections, builders may need to protect themselves. For example, the builder may want to take precautions by explaining the terms of the warranties in the written contract or in a statement signed by the buyer. The purpose of "walk-through" inspections should be explained to buyers so that buyer-caused claims can be minimized, at least for a one-year period. Procedures for buyers to follow in case of problems with their homes should be outlined clearly before the house is occupied. The more smoothly buyers are able to have repairs handled, the less expensive and troublesome the warranty will be for both the builder and the buyer. Also with smooth repair operations, there is less likelihood that the builder and buyer will become involved in legal action.

These required protections seem to place a tremendous burden on one industry; but by taking an affirmative stance with the buyer by saying, "You have these rights and you may enforce them in this manner," builders can psychologically and legally use these new protections to establish a better position for themselves and for the industry as a whole. No other industry has been required to provide so much protection for its customers. This factor can aid the new housing industry reputation, however, with continued efforts to educate and compensate new home buyers. Ultimately, the benefits of warranties to builders may outweigh the costs.

CONCLUSION

material. The implied warranty theory placed a burden on the construction industry to educate and clarify. Perhaps this burden may become a benefit as more and more builders follow the example of those who have established methods and routines designed to discover and repair defects as well as to improve the overall construction of their homes. The benefit is greater consumer satisfaction and an implied warranty in favor of homeowners that may indirectly benefit the builder-warrantors.

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[1] Housing Expenditures are currently a 29 percent share of the United States Consumer Price Index. Bureau of Labor Statistics. The average cost of a new home is $63,800 and the average cost of a previously occupied home is $56,500.

[2] Federal Trade Commission, "Housing Policy Session," November 6, 1978, pp. 1 and 38.

[3] Ibid., p. 40.

[4] Butler, "Phoenix New Home Survey, Surveys II and III," November 15, 1979, p. 4.

[5] See *Snyder v. Griswold*, 37 Ill. 216 (1865); *Weber v. The Aluminum Ore Co.*, 304, Ill. 273, 136 N.E. 685 (1922).

[6] It should be noted that the doctrine of merger is applicable only in situations where the delivery of the deed is contemplated as full performance. *Shelby v. Chicago* and E.I.R., 143 Ill. 385, 32 N.E. 438 (1892).

[7] Housing Policy, p. c-5.

[8] See 42 U.S.C. § §1441 et seq. and 40 U.S.C. § §460 and 461.

[9] Milton P. Semer, et al., "Evolution of Federal Legislative Policy in Housing: Housing Credits," in *Housing in the Seventies Working Papers*, U. S. Department of Housing and Urban Development, National Housing Policy Review, p. 77 (1976).

[10] See 38 U.S.C. et seq. and 12 U.S.C. §1215 et seq.

[11] HUD's lack of enforcement of section 518(a) and 518(b) on low income houses is not justified by the statistics. Research indicates that 24 percent of newly constructed low income housing is defective and that two-fifths of that 24 percent have major defects affecting safety and health. Housing Policy, p. 13.

[12] Housing Policy, supra note 2, p. 38; see also "FTC to Come Down Hard on Housing," *Professional Builder*, March 1979, p. 25.

[13] "What Consumers Want in Housing," *Professional Builder*, December 1978, p. 70.

[14] Butler, "Phoenix New Home Survey, Surveys II and III," Nov 15, 1979, p. 5.

[15] Ibid.

[16] See A.R.S. §44-2331.

[17] See A.R.S. §44-2304.

[18] *Pines v. Perssion*, 14 Wis. 2d 590, 111 N.W. 2d 409, (1961); *Lemle v. Breeden*, 462 P. 2d 470 (Hawaii, 1969).

[19] In *Liteim v. Timbercrest Estates, Inc.*, 37 Ill. App. 3d 956, 347 N.E. 2d 378 (1976) it was held that the original buyer cannot effectively assign his rights against the builder to the purchaser unless the defect has already been discovered by the original buyer.

[20] *Columbia Western Corp. v. Vela*, et al., 592 P. 2d 1295 (1979).

[21] 86 Ariz. 128, 341 P. 2d 923 (1969).

[22] 592 P. 2d 1294, 1296.

[23] *Trayanes v. Hortsman*, supra note 19.

[24] It has been shown that imposing liability on the builder can cause him to take precautionary measure. Brown, "Toward an Economic Theory of Liability," 2 *Journal of Legal Studies* 323, 1973. However, warranties by third parties, where the builder does not absorb the cost, do not have the same effect.

[25] 363 F. Supp. 148 (E.D. Pa. 1973).

[26] "FTC to Come Down Hard on Housing," *Professional Builder*, March 1979, p. 25. Although Commissioner Dole has resigned, the policy of the FTC is not expected to change.

The Arizona Business Scene

Fort Huachuca: Important Defense Installation

Fort Huachuca, located approximately sixty air miles southeast of Tucson, has become established as one of Arizona's most important military installations.

The fort was established in 1877 in response to the Indian campaigns of the 1870s and served as advance headquarters for the campaign against Geronimo in 1886. It continued as an active military installation and reached a peak troop strength of 30,000 during World War II. After the war, it was turned over to the state only to be reactivated by the U.S. Army during the Korean War. In the 1950s testing of electronics and communications equipment at the fort progressed to the point where Fort Huachuca became headquarters of the Army Communications Command (USACC) in 1967. USACC is the world-wide Army organization that provides diversified communications needs to U.S. installations and overseas units. Fort Huachuca is also the home of the Army Intelligence Center and School, the Army Electronic Proving Ground, and a tri-service (Army, Navy, Air Force) tactical communications test organization.

The fort is now the largest military installation in the state with over 5,500 military and 11,400 dependents living on or near the post. Recent population statistics are given in Table 1. In addition, about 4,800 civilian personnel currently work on the post — 3,900 Department of Defense (DOD) personnel and 900 other civilians including teachers, post concessionaires, postal employees, contractors, and others. Many of the personnel live off the post in Sierra Vista and Huachuca City with some living as far away as Tucson. In addition to active duty military and related civilian work force, the surrounding area is home to many retired military and their families. Almost 5,000 military retirees, including dependents, are estimated to live within 60 miles of the post.

TABLE 1

FORT HUACHUCA
MILITARY POPULATION

Category	*Number*
Military on Post	3,130
Military off Post	2,455
Total Military	5,580
Dependents on Post	5,801
Dependents off Post	5,617
Total Dependents	11,418

Source: U.S. Army estimates as of 1979.

Total area population associated with the fort, including active and retired military and dependents, and civilian work force, is currently estimated to exceed 26,600. Details are given in Table 2.

Nearly 1,800 school children associated with the fort attend school on the post or in neighboring communities. Federal impact funds supplement state monies to operate on and off post schools attended by military and DOD civilian dependent children. During the 1978-1979 school year, almost $2.7 million in impact funds was distributed to area school districts to help maintain a high level of educational services.

TABLE 2

FORT HUACHUCA
AREA POPULATION

Category	*Number*
Military Assigned	5,589
Military Dependents	11,418
DOD Civilians	3,885
Other Civilians	874
Military Retirees & Dependents	4,863
Total	26,629

Source: U.S. Army estimates as of 1979.

The overall economic impact of an installation of this size is substantial. During fiscal year 1979, the fort expended more than $187 million in Arizona in wages and purchases. (See Table 3.) When an economic multiplier is applied to allow for secondary and tertiary impact of these expenditures, the Army estimates that the total impact to the state in 1979 exceeded $500 million dollars.

Fort Huachuca also has a strong commitment to environmental concerns. For example, the fort has become a leader in water management and recycles or impounds all waste water produced on the installation. In addition, the fort has an active game management program, which has resulted in water catchment construction, along with an extensive reseeding program for wildlife enhancement and watershed improvement.

TABLE 3

FORT HUACHUCA
EXPENDITURES AND PURCHASES IN ARIZONA
(Millions)

Item	*Amount*
Civilian Pay	$ 79.8
Military Pay	72.2
Purchases	32.3
Other	3.3
Total	$187.6

Source: U.S. Army estimates as of 1979.

Aside from the substantial economic impact and environmental efforts, the installation is very important to the nation's defense. Fort Huachuca seems certain to continue its important roles of service to the nation and beneficial contributor to the state's economy.

A Survey of Arizona Business Conditions

HAROLD FEARON

The Arizona economy followed a flat course in March, according to results from the monthly business survey of the Purchasing Management Association of Arizona. Both output and new orders received were virtually stagnant, and inflation continued to rage. While there is growing concern that a recession may be imminent, it has not yet begun. Considering the dislocations caused by the severe flooding, plus the slowdown being induced by actions of the Carter Administration, Arizona's economic performance has held up relatively well. The next few months will be crucial in determining whether this is only a temporary pause or the beginning of a downward economic slide.

The Purchasing Management Business Survey now is in its eighteenth year of monthly reporting on the condition of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state. They report whether performance on six key indicators of economic performance increased, decreased, or remained the same compared to the previous month. Since these purchasing managers deal with market forces on a daily basis, they can provide a timely and accurate picture of current business trends.

Prices paid for major purchased items continued to accelerate rapidly. The March net increase was the same as in February; the past three months have registered increases at higher levels than have occurred since last April. Higher prices were reported by 80 percent of the purchasing managers; 16 percent said prices were unchanged; and only 4 percent paid lower prices in March compared to February. There is little chance, even with the current restraints being exercised in the federal sector, of any immediate reduction in the inflation rate until at least the third quarter of 1980 and perhaps even longer. Since no relief from pervasive, large price hikes appears in sight, pressure will continue to build for the imposition of federal wage/price controls, even though past experience dictates that would be only a temporary solution.

Delivery time on shipments from vendors continued to stretch out, as suppliers still have relatively good order books. However, the March increase rate was down a bit from both January and February and was the smallest net increase in over three years (since January of 1977). Thirty-five percent of the purchasing managers said it took longer to get deliveries in March than in February, while 13 percent enjoyed faster delivery service. Even though vendor business continues good, this indicator is signaling a reduction in the business growth rate, which is typical in a softening economy.

Inventory levels of purchased materials increased again in March, for the twentieth consecutive month, and at a rate consistent with the previous two months. Higher inventory was reported by 36 percent, which was about twice the 19 percent who cut stocks. The net in-

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crease rate still is well under those registered in the early months of 1979. While inventory is increasing, due in large part to lower production increases, and could become a problem in the next several months, the build-up does not yet appear excessive enough to trigger an inventory-induced recession.

New orders received from customers showed only a slight increase in March, the third in a row, following December's minor decrease. A higher new order rate was reported by 34 percent but an almost comparable 29 percent saw their order books shrink. The February and March marginal increases were the smallest of any two consecutive months since November and December of 1976. Thus, the aftermath of the floods, plus the general slowdown in the national economy, appear to have reduced substantially the rate of growth in the Arizona economy, as might have been expected.

Production of Arizona firms went up slightly in March, following the previous month's zero growth. Thirty-one percent increased production, compared to 24 percent who cut back output. Performance of this indicator has been marginal over the past four months. While there have not yet been any net declines in production, the growth rate so far this year has been quite small and far below all but the last month of 1979.

Employment advanced again in March, for the fifty-first consecutive month, although the increase was well under the previous month and the lowest in over two years (since January of 1978). Higher employment was indicated by 22 percent; 18 percent pared payrolls. This indicator provides further evidence that the Arizona economy has entered into a period of slower growth.

Thus, all the indicators are signaling a decided slowdown in the rate of Arizona's economic growth. Economic performance still is on an upward slope, but the rate of increase has come down to a close-to-zero-growth figure. We are not yet in a recession, but if the trend line followed in the first quarter of 1980 continues, a minor downturn could begin in the second quarter. However, even if a recession does begin, it likely will be very shallow and of short duration.

The results of the March purchasing survey are shown in Table 1.

TABLE 1

MARCH PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (March compared to February)		
Key Indicator	*Higher*	*Same*	*Lower*
Prices paid for major commodities	80	16	4
Delivery time from vendors	35	52	13
Purchased materials inventory level	36	45	19
New orders received	34	37	29
Production	31	45	24
Employment	22	60	18

Source: Survey of the Purchasing Management Association of Arizona

ARIZONA SALES OF ELECTRICAL POWER
By Months
(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1980	*1979*	*Same Month Previous Year*	*Previous Month*
February	2,016.5	1,888.8	6.76	−8.34

Source: Based on reports from major suppliers

Arizona New Housing Starts: Monthly Report

FEBRUARY, 1980

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	7	—	—	—	7
Eagar	—	—	—	—	—
St. Johns	4	—	—	—	4
Springerville	2	—	—	—	2
Uninc. Apache Co.	1	—	—	—	1
COCHISE COUNTY	68	—	—	—	68
Benson	3	—	—	—	3
Bisbee	1	—	—	—	1
Douglas	4	—	—	—	4
Huachuca City	—	—	—	—	—
Sierra Vista	29	—	—	—	29
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	29	—	—	—	29
Willcox	1	—	—	—	1
COCONINO COUNTY	47	1	—	—	49
Flagstaff	20	—	—	—	20
Fredonia	1	—	—	—	1
Page	9	—	—	—	9
Uninc. Coconino Co.	17	1	—	—	19
Williams	—	—	—	—	—
GILA COUNTY	27	—	—	—	27
Globe	1	—	—	—	1
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	7	—	—	—	7
Uninc. Gila Co.	19	—	—	—	19
GRAHAM COUNTY	17	—	—	—	17
Pima	—	—	—	—	—
Safford	4	—	—	—	4
Thatcher	2	—	—	—	2
Uninc. Graham Co.	11	—	—	—	11
GREENLEE COUNTY	—	—	—	—	—
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	—	—	—	—	—
MARICOPA COUNTY	1,087	5	9	20	1,513
Avondale	5	—	—	—	5
Buckeye	—	—	—	—	—
Chandler	88	—	—	—	88
El Mirage	—	—	—	—	—
Gila Bend	1	—	—	—	1
Gilbert	6	—	—	—	6
Glendale	66	—	—	3	94
Goodyear	—	—	—	—	—
Guadalupe	—	—	—	—	—
Mesa	130	2	4	3	258
Paradise Valley	10	—	—	—	10
Peoria	17	—	—	—	17
Phoenix	344	3	—	10	567
Scottsdale	58	—	—	—	58
Surprise	—	—	—	—	—
Tempe	38	—	5	1	67
Tolleson	2	—	—	—	2
Uninc. Maricopa Co.	320	—	—	3	338
Wickenburg	2	—	—	—	2
Youngtown	—	—	—	—	—

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
MOHAVE COUNTY	192	1	3	—	204
Kingman City	14	—	—	—	14
Kingman Area	24	—	—	—	24
Lake Havasu City	54	1	—	—	56
Lake Havasu Area	8	—	—	—	8
Mohave Valley North	60	—	3	—	70
Mohave Valley South	20	—	—	—	20
Dolan Springs	4	—	—	—	4
Sacramento Valley	7	—	—	—	7
Mohave Co. General	1	—	—	—	1
NAVAJO COUNTY	18	—	—	—	18
Holbrook	3	—	—	—	3
Show Low	4	—	—	—	4
Snowflake	1	—	—	—	1
Taylor	—	—	—	—	—
Uninc. Navajo Co.	8	—	—	—	8
Winslow	2	—	—	—	2
PIMA COUNTY	451	4	7	1	569
Marana	—	—	—	—	—
Oro Valley	—	—	—	—	—
South Tucson	1	—	—	—	1
Tucson	74	4	7	1	192
Uninc. Pima Co.	376	—	—	—	376
PINAL COUNTY	68	—	—	—	68
Casa Grande	9	—	—	—	9
Coolidge	3	—	—	—	3
Eloy	—	—	—	—	—
Florence	3	—	—	—	3
Kearny	2	—	—	—	2
Mammoth	2	—	—	—	2
Superior	—	—	—	—	—
Uninc. Pinal Co.	49	—	—	—	49
SANTA CRUZ COUNTY	5	—	—	—	5
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	1	—	—	—	1
Uninc. Santa Cruz Co.	4	—	—	—	4
YAVAPAI COUNTY	116	1	8	—	145
Chino Valley	2	—	—	—	2
Clarkdale	3	—	—	—	3
Cottonwood	5	—	—	—	5
Jerome	N/R	N/R	N/R	N/R	N/R
Prescott	43	—	6	—	64
Uninc. Yavapai Co.	63	1	2	—	71
YUMA COUNTY	109	1	4	—	127
Parker	—	—	—	—	—
Somerton	—	—	—	—	—
Uninc. Yuma Co.	52	—	—	—	52
Wellton	—	—	—	—	—
Yuma	57	1	4	—	75
TOTAL, Maricopa Co., February 1980	1,087	5	9	20	1,513
TOTAL, Maricopa Co., February 1979	2,029	3	5	109	3,072
PERCENT CHANGE	-46	67	80	-82	-51
TOTAL, Arizona, February 1980	2,212	13	31	21	2,817
TOTAL, Arizona, February 1979	3,396	22	16	113	4,630
PERCENT CHANGE	-35	-41	94	-81	-39

N/R: No report; data for this month will be combined with data reported for the following month.

*Includes mobile homes.

FEBRUARY, 1980

Arizona Building Permits: Monthly Report

CENSUS DIVISION	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
APACHE COUNTY	8	2,600	2	—	—	—	1	N/C	11	2,600
Eagar	—	—	—	—	—	—	—	—	—	—
St. Johns	5	N/C	—	—	—	—	1	N/C	6	N/C
Springerville	2	N/C	2	N/C	—	—	—	—	4	N/C
Unincorporated Apache County	1	2,600	—	—	—	—	—	—	1	2,600
COCHISE COUNTY	120	2,166,556	3	341,000	—	—	76	308,826	199	2,816,382
Benson	6	45,300	—	—	—	—	5	11,380	11	56,680
Bisbee	14	100,175	—	—	—	—	6	7,250	20	107,425
Douglas	8	242,426	—	—	—	—	16	34,759	24	277,185
Huachuca City	5	5,671	—	—	—	—	—	—	5	5,671
Sierra Vista	45	882,068	3	341,000	—	—	30	53,452	78	1,276,520
Tombstone	1	N/C	—	—	—	—	3	6,650	4	6,650
Unincorporated Cochise County	37	876,516	—	—	—	—	15	194,985	52	1,071,501
Willcox	4	14,400	—	—	—	—	1	350	5	14,750
COCONINO COUNTY	75	1,948,227	8	268,135	—	—	24	23,988	107	2,240,350
Flagstaff	31	1,199,023	6	265,435	—	—	6	3,160	43	1,467,618
Fredonia	2	35,000	—	—	—	—	3	7,000	5	42,000
Page	16	76,110	1	1,000	—	—	3	2,400	20	79,510
Unincorporated Coconino County	25	626,094	1	1,700	—	—	9	8,953	35	636,747
Williams	1	12,000	—	—	—	—	3	2,475	4	14,475
GILA COUNTY	45	490,073	5	219,178	—	—	29	30,212	79	739,463
Globe	7	37,200	—	—	—	—	1	5,000	8	42,200
Hayden	—	—	—	—	—	—	—	—	—	—
Miami	2	55,500	—	—	—	—	1	2,000	3	57,500
Payson	7	30,888	1	45,300	—	—	26	16,212	34	92,400
Unincorporated Gila County	29	366,485	4	173,878	—	—	1	7,000	34	547,363
GRAHAM COUNTY	36	563,406	4	20,400	—	—	5	797,607	45	1,381,413
Pima	—	—	—	—	—	—	—	—	—	—
Safford	9	187,300	2	4,400	—	—	3	12,607	14	204,307
Thatcher	8	142,200	—	—	—	—	1	609,000	9	751,200
Unincorporated Graham County	19	233,906	2	16,000	—	—	1	176,000	22	425,906
GREENLEE COUNTY	—	—	—	—	—	—	—	—	—	—
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	—	—	—	—	—	—	—	—	—	—
Unincorporated Greenlee County	—	—	—	—	—	—	—	—	—	—
MARICOPA COUNTY	1,988	37,619,461	116	35,588,583	44	21,019,450	1,650	18,353,980	3,798	112,581,474
Avondale	5	51,500	—	—	—	—	15	72,312	20	123,812
Buckeye	—	—	—	—	—	—	9	50,375	9	50,375
Chandler	115	1,442,986	1	187,330	2	12,249,600	124	1,259,640	242	15,139,556
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	2	19,000	—	—	—	—	—	—	2	19,000
Gilbert	8	269,900	—	—	1	95,000	16	34,450	25	399,350
Glendale	114	2,431,525	13	961,200	—	—	170	568,187	297	3,960,912
Goodyear	—	—	—	—	—	—	8	10,300	8	10,300
Guadalupe	—	—	—	—	—	—	—	—	—	—
Mesa	250	2,720,550	15	6,303,653	2	66,000	223	1,135,473	490	10,225,676
Paradise Valley	40	1,320,685	1	99,500	—	—	14	299,126	55	1,719,311
Peoria	23	464,433	1	4,000	—	—	28	61,842	52	530,275
Phoenix	617	17,115,315	35	19,021,618	22	4,298,250	633	11,470,979	1,307	51,906,162
Scottsdale	95	2,806,656	7	2,181,107	—	—	259	1,979,664	361	6,967,427
Surprise	6	3,500	—	—	—	—	1	1,350	7	4,850
Tempe	124	1,406,700	22	1,949,800	17	4,310,600	33	334,700	196	8,001,800
Tolleson	10	24,324	—	—	—	—	—	—	10	24,324
Unincorporated Maricopa County	544	7,425,420	21	4,880,375	—	—	109	1,033,254	674	13,339,049
Wickenburg	11	100,493	—	—	—	—	—	—	11	100,493
Youngtown	24	16,474	—	—	—	—	8	42,328	32	58,802

Arizona Building Permits: Monthly Report (Continued)

FEBRUARY, 1980	*RESIDENTIAL**		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MOHAVE COUNTY	407	5,352,443	18	492,668	—	—	120	475,761	545	6,320,872
Kingman City	17	297,833	6	26,674	—	—	4	4,650	27	329,157
Kingman Area	52	489,306	1	1,470	—	—	16	30,300	69	521,076
Lake Havasu City	71	2,119,374	1	8,424	—	—	41	249,148	113	2,376,946
Lake Havasu Area	17	152,808	1	6,480	—	—	3	10,500	21	169,788
Mohave Valley North	161	1,544,217	7	338,260	—	—	39	164,309	207	2,046,786
Mohave Valley South	62	472,627	2	111,360	—	—	5	4,624	69	588,611
Dolan Springs	13	90,848	—	—	—	—	6	3,270	19	94,118
Sacramento Valley	12	139,964	—	—	—	—	5	7,560	17	147,524
Mohave County General	2	45,466	—	—	—	—	1	1,400	3	46,866
NAVAJO COUNTY	38	606,848	2	152,116	—	—	7	13,620	47	772,584
Holbrook	3	190,000	—	—	—	—	—	—	3	190,000
Show Low	10	60,020	1	2,116	—	—	—	—	11	62,136
Snowflake	2	N/C	—	—	—	—	—	—	2	N/C
Taylor	—	—	—	—	—	—	—	—	—	—
Unincorporated Navajo County	11	252,828	—	—	—	—	6	11,620	17	264,448
Winslow	12	104,000	1	150,000	—	—	1	2,000	14	256,000
PIMA COUNTY	907	11,776,733	44	15,768,125	—	—	380	3,205,546	1,331	30,750,404
Marana	—	—	—	—	—	—	—	—	—	—
Oro Valley	2	75,075	—	—	—	—	—	—	2	75,075
South Tucson	5	25,380	1	5,500	—	—	1	12,000	7	42,880
Tucson	199	2,479,922	30	5,563,825	—	—	254	2,134,916	483	10,178,663
Unincorporated Pima County	701	9,196,356	13	10,198,800	—	—	125	1,058,630	839	20,453,786
PINAL COUNTY	106	1,026,182	3	38,500	—	—	30	371,630	139	1,436,312
Casa Grande	20	202,237	—	—	—	—	2	N/C	22	202,237
Coolidge	15	37,000	—	—	—	—	—	—	15	37,000
Eloy	4	5,750	1	30,000	—	—	—	—	5	35,750
Florence	3	50,500	—	—	—	—	6	14,955	9	65,455
Kearny	2	4,000	—	—	—	—	—	—	2	4,000
Mammoth	2	N/C	—	—	—	—	—	—	2	N/C
Superior	4	N/C	—	—	—	—	—	—	4	N/C
Unincorporated Pinal County	56	726,695	2	8,500	—	—	22	356,675	80	1,091,870
SANTA CRUZ COUNTY	7	198,805	—	—	—	—	4	212,880	11	411,685
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	2	12,055	—	—	—	—	—	—	2	12,055
Unincorporated Santa Cruz County	5	186,750	—	—	—	—	4	212,880	9	399,630
YAVAPAI COUNTY	183	3,683,940	24	1,305,411	—	—	44	132,884	251	5,122,235
Chino Valley	3	47,900	—	—	—	—	1	2,800	4	50,700
Clarkdale	3	85,500	—	—	—	—	—	—	3	85,500
Cottonwood	10	78,300	3	227,600	—	—	6	725	19	306,625
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	66	1,135,366	18	562,811	—	—	20	86,875	104	1,785,052
Unincorporated Yavapai County	101	2,336,874	3	515,000	—	—	17	42,484	121	2,894,358
YUMA COUNTY	230	3,269,857	13	408,288	1	13,561	38	370,254	282	4,061,960
Parker	—	—	5	11,350	—	—	—	—	5	11,350
Somerton	—	—	—	—	—	—	—	—	—	—
Unincorporated Yuma County	133	1,375,901	3	135,896	1	13,561	18	169,859	155	1,695,217
Wellton	—	—	—	—	—	—	—	—	—	—
Yuma	97	1,893,956	5	261,042	—	—	20	200,395	122	2,355,393
TOTAL Maricopa County, February 1980	1,988	37,619,461	116	35,588,583	44	21,019,450	1,650	18,353,980	3,798	112,581,474
TOTAL Maricopa County February 1979	2,815	54,902,517	214	34,596,187	40	6,514,966	1,812	20,169,485	4,881	116,183,155
PERCENT CHANGE	– 29	– 31	– 46	3	10	223	– 9	– 9	– 22	– 3
TOTAL Arizona, February 1980	4,150	68,705,131	242	54,602,404	45	21,033,011	2,408	24,297,188	6,845	168,637,734
TOTAL Arizona, February 1979	5,338	92,113,748	304	43,683,443	44	6,852,966	2,495	30,093,351	8,181	172,743,508
PERCENT CHANGE	– 22	– 25	– 20	25	2	207	–3	–19	– 16	– 2

N/C: Not collected. N/R: No report, data for this month will be combined with data reported for the following month.

*Includes mobile homes

Maricopa County Monthly Retail Food Prices

MARCH, 1980

The Maricopa County Index of Food Consumed at Home increased 1.5 percent during March following a decline of 0.6 percent in February. The March index value of 233.8 indicates that county shoppers had to pay $23.38 for a similar basket of foods that would have cost $10.00 in 1967. This food basket could have been purchased for $21.68 one year ago.

The higher index value was due to a rise in all of the subgroups. Relatively large gains occurred in *Other Foods* (2.1 percent), *Cereals and Bakery Products* (1.8 percent), and *Meats, Poultry, Fish, and Eggs* (1.7 percent) while relatively modest increases were posted for *Fruits and Vegetables* (0.6 percent) and *Dairy Products* (0.3 percent).

Higher prices for carbonated drinks excluding non-dietary cola (8.5 percent), cola drinks excluding diet cola (5.2 percent), and sugar and artificial sweeteners (3.2 percent) led to a surge in the *Other Foods* category despite a fall in the price of margarine (-3.0 percent). Most items escalated in the *Cereals and Bakery Products* subgroup, including fresh sweetrolls, coffeecake, and donuts (7.5 percent), bread other than white (6.4 percent), and fresh cake and cupcakes (5.4 percent).

Mixed changes occurred in the *Meats, Poultry, Fish, and Eggs* category, but gains in noncanned ham (9.9 percent), ground beef (6.2 percent), eggs (4.7 percent), and sirloin steak (4.6 percent) more than offset declines in bacon (-3.3 percent), fresh whole chicken (-2.7 percent), and pork chops (-2.5 percent). All beef items rose this month.

In the *Fruits and Vegetables* subgroup, lettuce soared 36.2 percent while a decline in the price of oranges (-6.2 percent), bananas (-5.8 percent), and frozen vegetables (-3.4 percent) partially counteracted the upward trend. Most *Dairy Products* remained constant in price, but an increase in fresh milk (other than whole) and cream (1.9 percent), contributed to the small gain in the category.

A comparison of the December Food Consumed at Home Index for Maricopa County with index values for four selected metropolitan areas reveals that the outlays required to purchase a foodstuffs group in December, 1979 (obtainable for an outlay of $10.00 at 1967 average prices) were $23.13 in Maricopa County; $23.93 in Los Angeles-Long Beach; $24.50 in San Francisco-Oakland; $24.14 in Chicago-Northwestern Indiana; and $23.87 in the United States (average).

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States, and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	*Maricopa County Mar '80*[a]	*Maricopa County Dec '79*[b]	*United* States Dec '79*	*Los Angeles* Long Beach Dec '79*	*San Francisco Oakland Dec '79*	*Chicago* North-western Indiana Dec '79*
Food Consumed at Home	233.8	231.3	238.7	239.3	245.0	241.4
Cereals and Bakery Products	224.4	216.3	231.6	239.1	235.5	237.3
Meats, Poultry, Fish, and Eggs	246.1	243.2	235.5	240.9	247.5	239.6
Dairy Products	206.3	205.0	216.9	205.7	207.5	211.4
Fruits and Vegetables	201.8	218.4	230.2	227.9	234.0	238.3
Other Foods Consumed at Home	261.9	249.9	281.1	277.6	298.7	288.0

* Computed from data contained in The Consumer Price Index, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisions of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index Comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Metropolitan Phoenix Consumer Price Index

FIRST QUARTER, 1980

The Metropolitan Phoenix Consumer Price Index rose 6.9 percent during the first quarter of 1980 — the largest quarterly increase since compilation of the series was initiated in 1975. The twin shocks of sharply higher interest rates and gasoline prices were two of the most important contributors to the acceleration in the inflation rate during the first three months of the new decade.

On an annual basis, the first quarter CPI at 222.4 stands 19.9 percent higher than it did a year ago in the first quarter of 1979. The rate of inflation in the Phoenix area has been higher than that experienced in the nation as a whole (14.2 percent first quarter 1979 to first quarter 1980) and in the two comparison cities of Chicago (14.9 percent) and Los Angeles-Long Beach (17.7 percent).

The Consumer Price Index (CPI) for the Phoenix Metropolitan area, upon which this discussion is based, is prepared by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The quarterly CPI is based upon comprehensive price surveys undertaken by the Bureau of Business and Economic Research in cooperative cosponsorship with the Valley National Bank of Arizona.

Prices in the Food at Home category rose 2.0 percent during the first quarter, comparing favorably with the 2.6 percent increase during the fourth quarter of 1979. Over the past year, increases in prices of Food at Home have been relatively modest, showing an 8.4 percent increase over first quarter, 1979. Food Away From Home prices jumped sharply during the new year — up 6.3 percent in the first quarter and 15.5 percent higher than one year ago. Because of this unfortunate trend, the price index for the overall *Food and Beverages* category rose 3.4 percent during the quarter and 10.6 percent during the past year.

The price index for the *Housing* category soared 8.6 percent during the first quarter and was 26.2 percent higher than the first quarter, 1979. This steep rise was much greaer than for the nation as a whole (a 4.0 percent quarterly increase) or for Chicago (2.0 percent) and slightly higher than for Los Angeles-Long Beach (7.4 percent). As was the case last quarter, the most important factor contributing to the increases in the Shelter subcategory was sharply higher interest rates caused by restrictive monetary policy actions of the Federal Reserve. The quarterly increase in contract mortgage interest costs was almost 30 percent; home prices also continued to rise (4.3 percent) but less rapidly than the 5.3 percent increase recorded in fourth quarter 1979. Prices in the Fuel and Utilities subcategory rose 1.0 percent during the first quarter and stood 10.3 percent above levels of a year earlier. These increases in utility costs are much smaller than those recorded in the United States as a whole or in the comparison cities during the first quarter (United States, 4.7 percent; Chicago, 10.2 percent; and Los Angeles-Long Beach, 6.9 percent). In the Household Furnishings and Operation subcategory, prices jumped 2.8 percent during the first quarter, larger than the previous quarter's increase of 1.9 percent, but even with these quarterly increases, Household Furnishings and Operations prices rose a moderate 5.7 percent over the first quarter 1979 to first quarter 1980 period.

The methodology utilized to compute the CPI gives very important weight in the total index to the purchase price of homes and to mortgage interest rates. Under recent conditions of rapidly escalating prices of both mortgage money and homes, this situation results in very high rates of inflation as measured by the CPI.

As part of their normal production of the consumer price indexes for the United States and for selected U.S. cities, the Bureau of Labor Statistics computes a price index including information for all items but excluding the Shelter subcategory. To demonstrate the impact of the recent escalation of mortgage rates and home prices upon the All Items CPI, an "All Items Less Shelter" index has also been compiled for the Metropolitan Phoenix area. For the first quarter of 1980, this index rose 4.8 percent compared with the previously reported 6.9 percent increase in the All Items CPI. Comparisons of such an "All Items Less Shelter" index with the All Items CPI for the United States as a whole and for the Los Angeles-Long Beach area show a similar pattern (3.7 versus 3.9 percent and 4.5 versus 6.0 percent respectively); but this was not the case for Chicago (4.2 versus 3.0 percent), where prices in other categories had increased more rapidly than the prices in the Shelter subcategory.

Phoenix area shoppers experienced only a 0.5 percent increase in prices of the *Apparel and Upkeep* category during the first three months of 1980. In this category, only the Men's and Boys' Apparel subcategory showed an increase, with price declines recorded in the other subcategories due to post-Christmas sales of many apparel items. *Apparel and Upkeep* prices in the nation as a whole demonstrated an even smaller 0.1 percent increase, while prices decreased in Chicago (-0.5 percent) and increased sharply in Los Angeles-Long Beach (5.0 percent) during the quarter. Over the past four quarters, the price index for the *Apparel and Upkeep* category demonstrated the smallest annual increase of the seven major categories (2.4 percent). Of all the subcategories only Footwear recorded significant price increases during the past year.

For the third quarter in a row, *Transportation* has posted the largest gain of all the major categories — an 8.7 percent quarterly increase. Transportation prices also rose sharply in the United States as a whole (6.5 percent), Chicago (6.4 percent), and Los Angeles-Long Beach (7.5 percent) during the first quarter. For the Private Transportation subcategory, increases occurred in the prices of gasoline, tires, parts, and financing. In the Public Transportation subcategory, the big jump in the index was primarily due to higher airline and intercity bus fares.

Prices in the *Medical Care* category rose 3.5 percent during the first quarter in the Phoenix area, comparing favorably with the experience in the nation as a whole (4.0 percent), Chicago (6.9 percent), and Los Angeles-Long Beach (5.3 percent). Major contributors to higher medical costs in Phoenix were increases in the prices of physician and dental services and in hospital room costs. Since the first quarter of 1979, the price index for *Medical Care* in Phoenix has jumped 16.0 percent, somewhat more than the yearly increases recorded for the nation (10.9 percent), Chicago (12.9 percent), or Los Angeles-Long Beach (12.9 percent).

After a decrease in *Entertainment* prices during the fourth quarter, the price index for the category jumped 8.8 percent in the first quarter, led by seasonal increases in fees and admissions. The adverse quarterly comparison also occurred because many of the items included in the category, such as sporting equipment, toys, games, and photo equipment, are frequently sale-priced during the fourth quarter. Even with an almost 9 percent quarterly increase, however, prices in the *Entertainment* category rose 10.4 percent in Phoenix during the first quarter, 1979, to first quarter, 1980, period. This increase is somewhat higher than the 8.0 percent annual increase in the United States as a whole but similar in magnitude to the yearly rise in the Los Angeles-Long Beach area (9.7 percent) and less than that in Chicago (15.3 percent).

Prices in the *Other Goods and Services* category showed increases of 3.9 percent during the first quarter of 1980, largely due to substantial hikes in the prices of cigarettes and of personal care products. Over the past year, however, the price index of this category reflects only moderate increases in the prices paid by Phoenix area shoppers (6.5 percent) — an annual increase less than that showed by prices in the *Other Goods and Services* categories in the United States (8.4 percent), Chicago (7.9 percent), and Los Angeles-Long Beach (9.6 percent) during the past year.

TABLE 1
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
FIRST QUARTER 1980
(1969 = 100)

Group	*Fourth Quarter 1979* Index*	*First Quarter 1980 Index*	*Percentage Change from Last Quarter*	*Percentage Change from One Year Ago*
ALL ITEMS	208.1*	222.4	6.9	19.9
Food and Beverages	205.0	212.0	3.4	10.6
Food	210.1	217.2	3.4	10.8
Food at Home	223.5	227.8	2.0	8.4
Cereals and Bakery Products	218.0	224.7	3.1	11.3
Meats, Poultry, Fish, and Eggs	216.0	221.0	2.3	3.3
Dairy Products	198.1	200.4	1.2	10.5
Fruits and Vegetables	204.9	201.3	-1.7	4.4
Other Foods at Home	213.5	220.5	3.3	13.4
Food Away From Home	176.0	187.1	6.3	15.5
Alcoholic Beverages	139.1	144.2	3.6	8.0
Housing	207.0*	224.8	8.6	26.2
Shelter	213.6*	237.5	11.2	34.0
Rent, Residential	170.2*	172.3	1.3	7.8
Homeownership	219.7	249.5	13.6	40.9
Fuel and Other Utilities	223.7	225.9	1.0	10.3
Household Furnishings and Operation	179.9	184.9	2.8	5.7
Apparel and Upkeep	169.4	170.2	0.5	2.4
Apparel Commodities	165.4	164.2	-0.7	0.9
Men's and Boys' Apparel	145.3	150.0	3.3	3.2
Women's and Girls'	165.4	158.7	-4.1	-5.4
Footwear	210.7	209.0	-0.8	11.6
Transportation	219.6	238.6	8.7	25.4
Private Transportation	218.7	238.6	9.1	25.2
Public Transportation	233.4	238.0	2.0	28.8
Medical Care	285.0	295.1	3.5	16.0
Entertainment	167.6	182.3	8.8	10.4
Other Goods and Services	202.1	209.9	3.9	6.5
Personal Care	198.8	209.3	5.3	12.3

*Because of an error in computation, the fourth quarter, 1979 index figures for rent and related items were reported incorrectly in the February, 1980 issue of *Arizona Business*. The corrected figures are reported here.

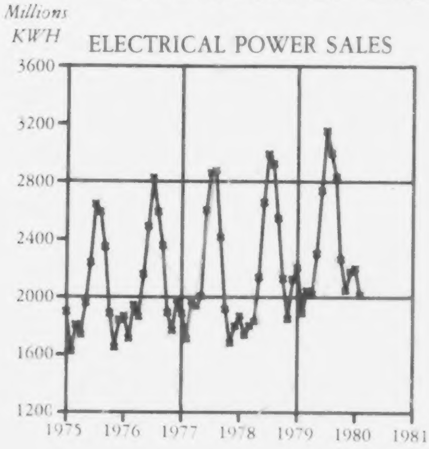
UNITED STATES AND COMPARATIVE CITIES

Group	*United States*		*Chicago*		*LA-Long Beach*	
	Percentage Change From Last Quarter	*Percentage Change From One Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*
ALL ITEMS	3.9	14.2	3.0	14.9	6.0	17.7
Food	2.4	7.3	1.9	7.9	1.9	6.9
Food at Home	2.3	5.8	2.2	5.5	2.1	7.7
Food Away From Home	2.8	10.7	1.3	13.1	1.4	5.6
Housing	4.0	16.2	2.0	17.1	7.4	21.2
Shelter	4.4	18.3	0.2	18.1	8.5	24.5
Fuel and Utilities	4.7	18.1	10.2	20.8	6.9	17.1
Household Furnishings and Operation	2.0	7.0	3.6	10.4	1.9	8.1
Apparel and Upkeep	0.1	6.5	-0.5	5.4	5.0	12.4
Transportation	6.5	22.5	6.4	22.0	7.5	25.8
Medical Care	4.0	10.9	6.9	12.9	5.3	12.9
Entertainment	2.6	8.0	4.8	15.3	2.5	9.7
Other Goods and Services	2.6	8.4	2.2	7.9	5.9	9.6

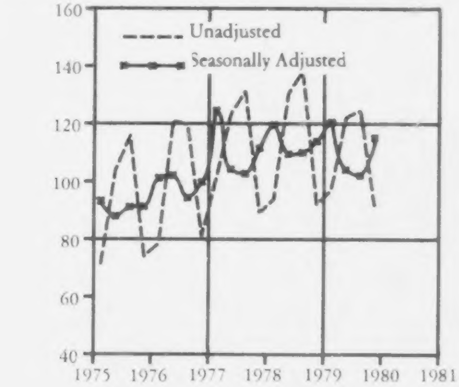
Source: Metropolitan Phoenix data compiled by Bureau of Business and Economic Research, College of Business Administration, Ariozna State University; other data from U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

Arizona Economic Indicators

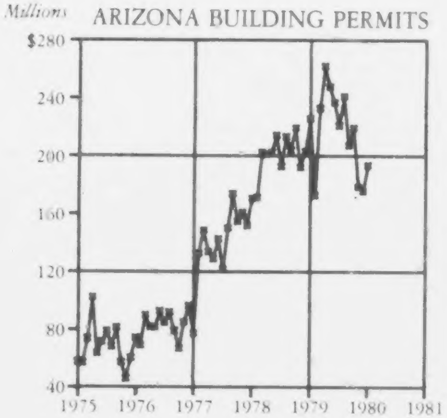
ELECTRICAL POWER SALES



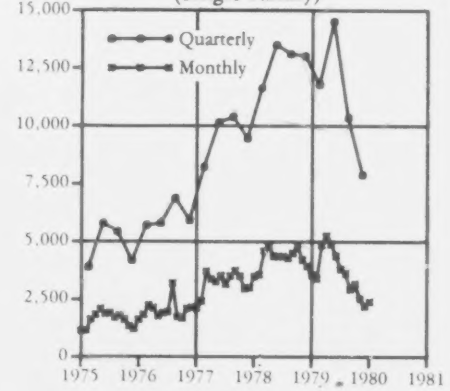
ARIZONA TOURISM INDEX



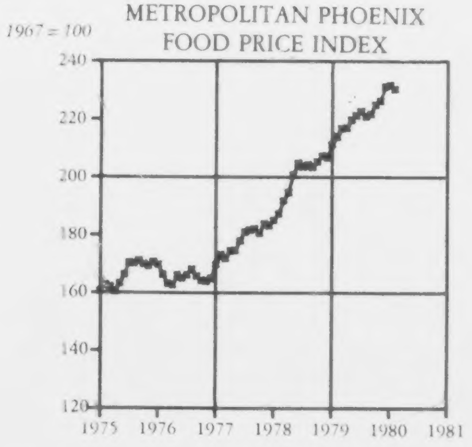
ARIZONA BUILDING PERMITS



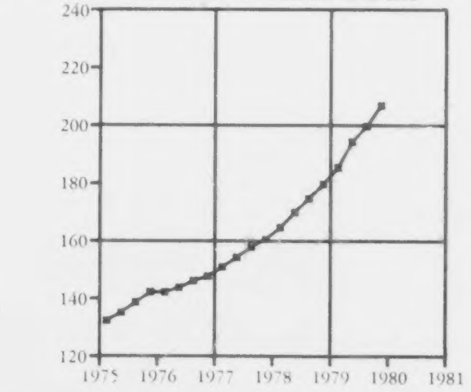
ARIZONA NEW HOUSING STARTS (Single Family)



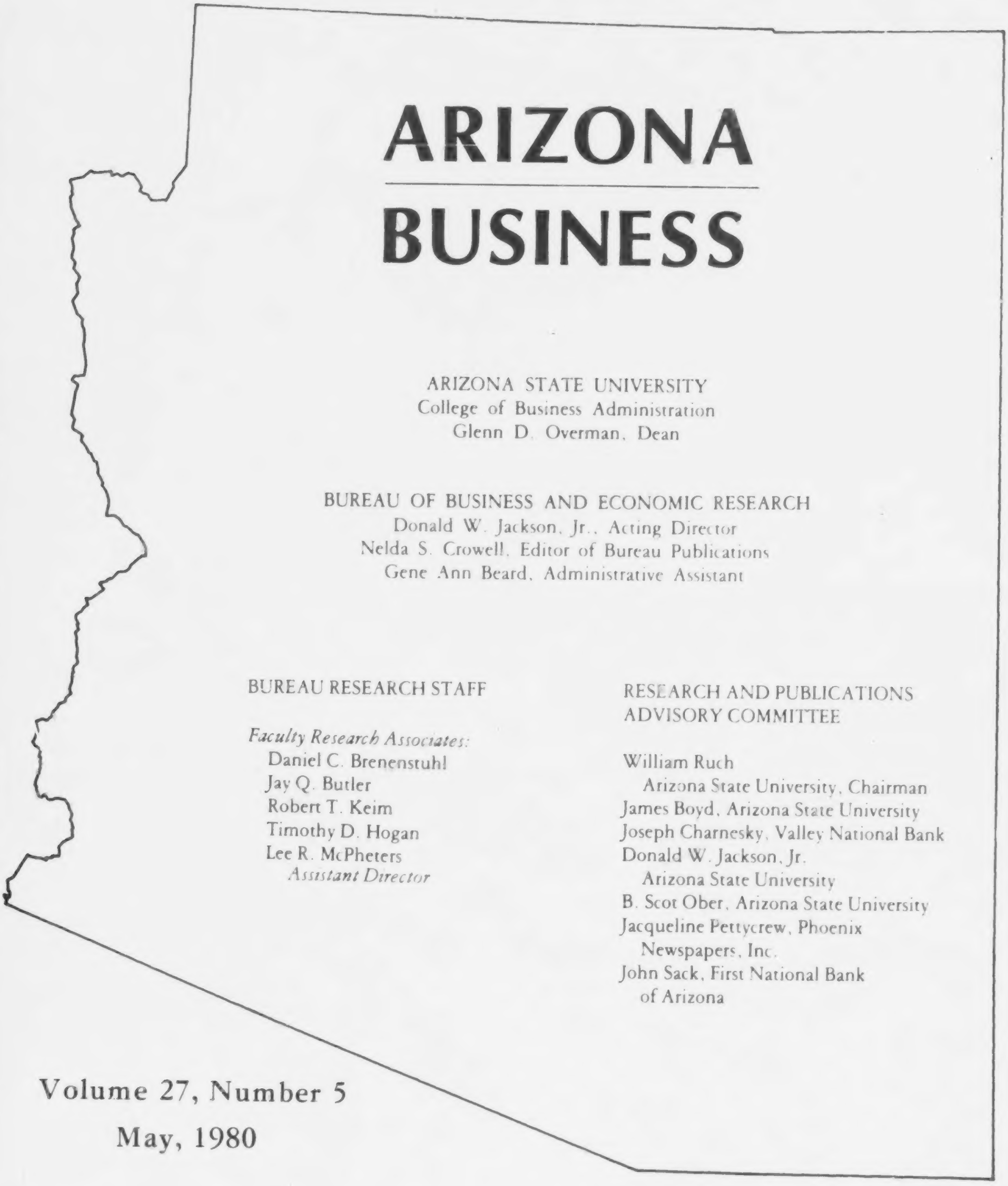
METROPOLITAN PHOENIX FOOD PRICE INDEX



METROPOLITAN PHOENIX CONSUMER PRICE INDEX



Source: All data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.



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In This Issue

Coronary Risk Among Working Men and Women 3
Robert Kreitner
Steven D. Wood
Glenn M. Friedman
Business and the Arts: A Reciprocal Relationship 8
C. Edward Kur
Erik Knudson
A Profile of Business Strategies in Arizona 14
Frank Shipper
The Arizona Business Scene — Arizona Wholesale Trade: An $8 Billion Business 22
A Survey of Arizona Business Conditions 24
Harold Fearon
Arizona Sales of Electrical Power 25
Arizona Construction Activity: Quarterly Report, First Quarter, 1980 26
Jay Q. Butler
Arizona New Housing Starts: Quarterly Report, First Quarter, 1980 29
Arizona Building Permits: Quarterly Report, First Quarter, 1980 30
Arizona Building Permits: Monthly Report, March, 1980 32
Arizona New Housing Starts Monthly Report, March, 1980 34
Maricopa County Monthly Retail Food Prices, April, 1980 35
Arizona Economic Indictators 36

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Report To The Reader

Epidemic — one seldom thinks of the word in connection with coronary disease. Yet the authors of the first article, "Coronary Risk Among Working Men and Women," give compelling reasons for the accuracy of the term.

Heart attack and stroke are indeed widespread, and the problem reaches into the business world. The death or disability of an employee means not only personal loss, but also loss of time, money, and valuable experience. Medical expenses are a factor that business must deal with. The cost involved in hiring and training a new employee must be considered.

Thus, prevention of coronary disease is an important aspect of business. The first step in prevention is identification of coronary risk factors among employees. Screening is now comparatively inexpensive, and the necessary tests can be given in a short time; employers need to encourage employees to participate in such screening.

The next step, modification, can also be an important aspect of business. Any coronary risk modification program, whether personal or company-sponsored, needs to be aimed at both men and women, as this article shows. The emphasis, however, may need to be different. Male employees should be given priority for blood pressure, high density cholesterol, and exercise programs; but both sexes could benefit from programs on smoking, stress, and cholesterol.

The second article in this issue of *Arizona Business* deals with another nontraditional role of business — the relationship between business and cultural organizations. Some interesting facts emerge from this study, including the following:

- In 1976, 12 percent of the total corporate philanthropic contributions went to the arts.
- In 1978, 83.2 percent of the support for six key cultural organizations in Phoenix came from individuals; only 10 percent came from business.
- Twenty-eight of the nation's fifty largest industrial corporations in 1976 averaged nearly $495,000 each in direct contributions to the arts, nationwide.
- The combined 1978 attendance at the Arizona Ballet, the Phoenix Symphony, the Phoenix Little Theatre, the Heard Museum, and the Phoenix Zoo was greater than the combined attendance at the forty-one Phoenix Suns games, seven ASU football games, and the Fiesta Bowl.

Coronary Risk Among Working Men and Women

ROBERT KREITNER
STEVEN D. WOOD
GLENN M. FRIEDMAN

This article presents the results of a coronary risk screening program for male and female employees. Both men and women were in the high risk categories; but in certain factors, men were at a greater risk.

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Heart attack and stroke have reached epidemic proportions in industrialized urbanized nations since World War II. In recent years, diseases of the heart and blood vessel system (cardiovascular disease) have been the leading cause of death in the United States. For example, in 1976, out of a total of 1,909,440 deaths in the United States due to all causes, 974,429 or 51 percent were attributed to cardiovascular disease. Clearly, the term *epidemic* appears to be in order.

From a national perspective, this epidemic has serious implications not only for the general welfare but for manpower planners as well. According to one medical observer, coronary disease alone claims the lives of 175,000 working-age Americans annually. Moreover, these premature deaths are only the tip of a costly iceberg. The fact is that for every fatal coronary, there are between one and two nonfatal but disabling attacks. Calls for constructive action on the part of employers have begun to appear in the management literature.

Responses to the cardiovascular disease epidemic have been many and varied. Significant among these responses has been the primary prevention approach. According to this approach, preventive steps should be taken to modify the factors that correlate strongly with atherosclerosis (commonly referred to as hardening of the arteries). These personal and situational factors have been labeled *coronary risk factors*. Two authorities, Henderson and Enelow, have identified the major coronary risk factors by noting, "Hypertension, cigarette smoking, and a diet high in saturated fat, cholesterol and sugar are all considered to be indicators of risk. Obesity, lack of physical activity, and various life stresses, including behavioral coping mechanisms (sometimes called Type A behavior pattern), also appear to contribute to risk status." To this list, the American Heart Association has added heredity. Significantly, of all the coronary risk factors mentioned, heredity is the only one not susceptible to behavioral or pharmacological modification.

Coronary risk factor identification and modification are at the very heart of the primary prevention approach. According to *Business Week*, among the newest converts to the preventive approach are the members of the American business community. It seems that cure has proven prohibitively expensive due to rising health care costs. Prevention is being hailed as a promising and less costly alternative to treatment of illness as it occurs. Typical company-sponsored programs include exercise facilities and programs, weight loss and quit-smoking clinics, blood pressure screenings, and diet and stress management counseling.

If the primary prevention of cardiovascular disease among working-age individuals is to achieve any degree of success in a cost-effective manner, then empirical assessment of employee coronary risk must be carried out. Accordingly, this article discusses an attempt to pinpoint coronary risk among employees. The orientation is one of male vs. female. National mortality statistics indicate that cardiovascular disease is a much more serious threat to men than to women. For example, in the United States in 1976 there were 381.6 deaths due to cardiovascular disease per 100,000 males; the comparable figure per 100,000 females was 206.7. With a male mortality rate nearly twice that of females, it is tempting to aim employee primary prevention programs exclusively at men. However, considering that females also die of cardiovascular disease, preventive programs in work organizations should be directed at both sexes with emphasis placed where it is needed. The present study represents an attempt to determine where emphasis should be placed in primary prevention programs for cardiovascular disease among employees.

Thus the underlying purpose of this article is to demonstrate, empirically, that male and female employees have unique coronary risk profiles that require appropriately tailored remedial programs.

RESEARCH METHOD

Subjects. In spring, 1978, 900 employees of a southwestern electronics firm were given the opportunity to participate in a prepaid coronary risk screening program. Out of the 641 who volunteered, 421 were males and 220 were females. Ages ranged from 20 to 65 with no significant difference in age between the male and female subsamples. The sample included 52 percent managerial/professional employees; 27 percent clerical/technical employees; and 21 percent assembly/inspection employees.

Procedure. The screening procedure consisted of two parts. First, each volunteer completed an eight-page questionnaire on general demographics, family background, lifestyle, and job attitudes. Next, a team of specially trained nurses took objective measurements of height, weight, subcutaneous fat, blood pressure, lung function, and physical fitness. In addition, a small blood sample was drawn from each volunteer. Within a couple of weeks of the screening, each particpant was mailed a confidential computer printout which profiled the individual's coronary risk.

Variables. The seven variables reported here were derived from five coronary risk categories: smoking, high blood pressure, abnormal cholesterol, stress, and physical inactivity. The seven variables were measured in the following manner:

Smoking. A question on the subjective questionnaire asked if the subject was a smoker or not at the time of the study. Smoking is a recognized coronary risk factor; an absence of smoking is desirable.

Systolic blood pressure. Contraction phase blood pressure was measured with a Physiometrics automated blood pressure machine while the subject was seated. The higher the systolic blood pressure, the greater is the coronary risk; a reading above 150 mm/hg indicates high risk. The risk thresholds employed in this study were derived from the Framingham and other widely recognized epidemiological studies of cardiovascular disease.

Diastolic blood pressure. Dilation phase blood pressure was also measured with a Physiometrics automated blood pressure machine while the subject was seated. The higher the diastolic blood pressure, the greater is the coronary risk; a reading above 90 mm/hg indicates high risk.

Cholesterol. Total serum cholesterol was determined by submitting a sample of blood taken through vena puncture during a nonfasting state to the Dow enzymatic test. The higher the total serum cholesterol is, the greater is the coronary risk; a reading above 270 mgm indicates high risk.

High density cholesterol. High density serum cholesterol was measured as a fraction of total serum cholesterol through a precipitated enzymatic test. The higher the percentage of high density cholesterol, the lower is the coronary risk; a reading below 36 mgm indicates high risk.

Stress. Exposure to generalized stressors was measured by having the subjects complete the Holmes and Rahe Social Readjustment Scale as part of the subjective questionnaire. The greater the social readjustment units are, the greater is the coronary risk; a reading above 150 units indicates high risk.

Physical fitness. General ability to cope with physical exertion was measured by taking the subject's pulse immediately after five minutes of mounting and dismounting a twelve-inch step at a monitored pace of 22 steps per minute. The higher the postexertion pulse is, the greater is the coronary risk; a reading above 160 beats per minute indicates high risk.

RESULTS

Male/female comparisons for the seven coronary risk variables are displayed in Table 1. Each of the variables is broken down by subcategory to enhance the clinical value of the data. From the standpoint of initiating

TABLE 1

MALE VERSUS FEMALE CORONARY RISK

SMOKING	*No*		*Yes*	
		Percent		*Percent*
Males (N = 417)	272	65.2	145	34.8
Females (N = 219)	140	63.9	79	36.1

Corrected χ^2 = .06; 1 df; p = .81

SYSTOLIC BLOOD PRESSURE	*≤100*		*101-125*		*126-150*		*151-175*		*176-200*	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Males (N = 419)	2	0	90	21.5	273	65.2	49	11.7	7	1.7
Females (N = 217)	12	5.5	122	56.2	75	34.6	8	3.7	0	0

χ^2 = 113.24; 4 df; p < .0001

DIASTOLIC BLOOD PRESSURE	*≤60*		*61-75*		*76-90*		*91-110*		*>110*	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Males (N = 419)	1	.2	101	24.1	260	62.1	54	12.9	3	.7
Females (N = 217)	6	2.8	91	41.9	108	49.8	10	4.6	2	.9

χ^2 = 36.87; 4 df; p < .0001

CHOLESTEROL	*≤170*		*171-220*		*221-270*		*271-320*		*>320*	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Males (N = 419)	106	25.3	132	31.5	95	22.7	52	12.4	34	8.1
Females (N = 219)	73	33.3	67	30.6	50	22.8	20	9.1	9	4.1

χ^2 8.14; 4 df; p = .09

HIGH DENSITY CHOLESTEROL	*≤25*		*26-35*		*36-45*		*46-55*		*56-65*		*66-75*		*>75*	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Males (= 409)	4	1.0	63	15.4	132	32.3	127	31.1	58	14.2	21	5.1	4	1.0
Females (N = 213)	4	1.9	6	2.8	45	21.1	58	27.2	56	26.3	30	14.1	14	6.6

χ^2 = 67.73; 6 df; p < .0001

STRESS (Social Readjustment Units)	*≤150*		*≤150*	
	n	%	*n*	%
Males (N = 394)	277	70.3	117	29.7
Females (N = 201)	126	62.7	75	37.3

Corrected χ^2 = 3.19; 1 df; p = .07

PHYSICAL FITNESS	*≤110*		*111-135*		*136-160*		*161-185*	
	n	%	*n*	%	*n*	%	*n*	%
Males (N = 336)	1	.3	81	24.1	183	54.5	71	21.1
Females (N = 154)	13	8.4	53	34.4	72	46.8	16	10.4

χ^2 = 36.69; 3 df; p < .0001

Source: Coronary risk screening program conducted by the authors preventive programs to modify coronary risk, it is important to know the frequency distribution for each risk factor.

Statistically significant male-versus-female differences were found for four of the seven coronary risk variables. Male employees had significantly higher systolic and diastolic blood pressure readings. Males had significantly lower high density cholesterol levels. Postexertion pulse rates were significantly higher for male employees. Consistent with the higher cardiovascular disease mortality rate among males, each of these significant differences was in the direction of higher coronary risk for male employees.

Looking only at males and females of *high* risk, males again led females in five of the seven risk categories. As the *high* risk profiles in Figure 1 indicate, the females were at a comparative "disadvantage" when it came to smoking and stress.

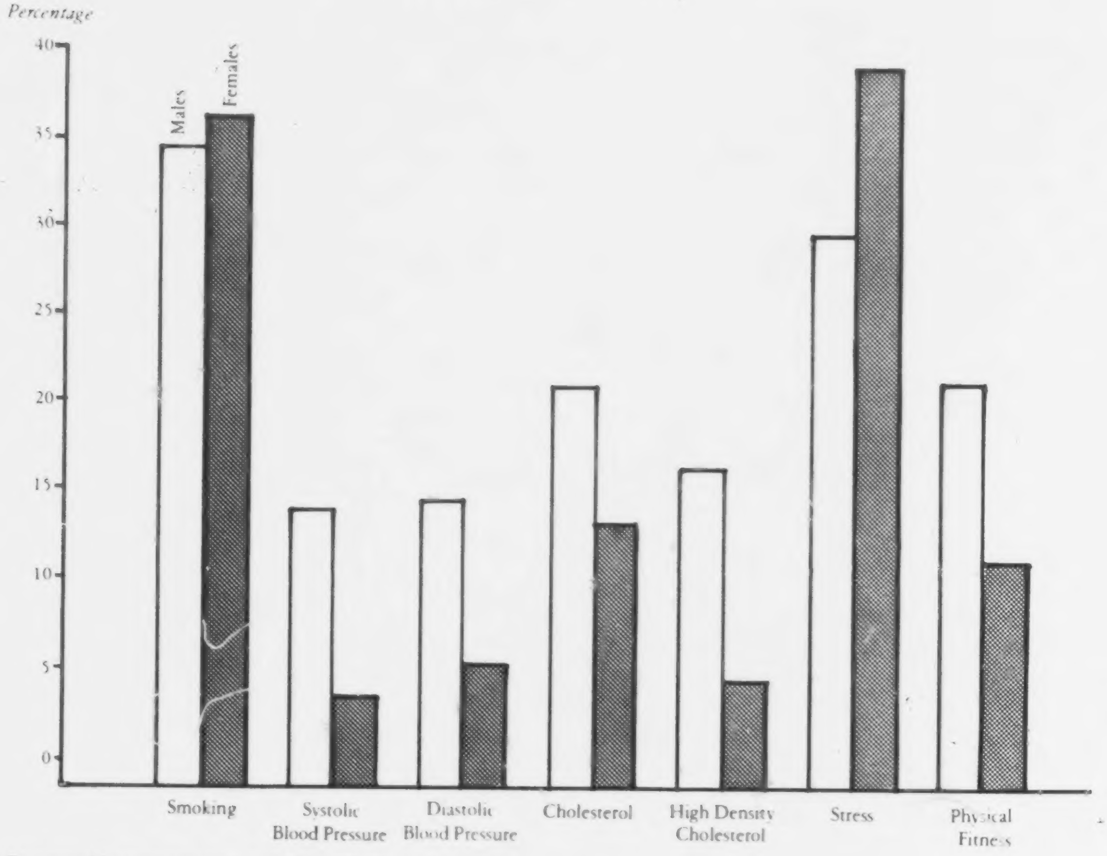
CONCLUSIONS AND DISCUSSION

The results reported here appear to support two working conclusions: First, the working males studied were at significantly higher coronary risk than their female coworkers in terms of systolic and diastolic blood pressure, high density cholesterol, and physical fitness. Second, both men and women were found in the high risk categories for all seven variables.

The employees studied were considered to be typical of individuals who do *not* engage in arduous

FIGURE 1

MALES AND FEMALES AT "HIGH" RISK



Source: Coronary risk screening program conducted by the authors.

physical labor in the course of their employment. This qualifies them for the "average employee" category.

This study has important implications for managerial decision-making relative to coronary risk screening/modification programs. Screening is recommended for both male and female employees because members of both sexes were found to be at high risk for the various factors. Regarding coronary risk modification programs (i.e., quit-smoking, exercise, diet, and stress programs), it appears that male employees should be given top priority for blood pressure, high density cholesterol, and exercise programs. Equal priority should be given to male and female employees for quit-smoking, cholesterol, and stress programs. In no case, however, should female employees be omitted from coronary risk modification programs of any kind because of a lower mortality rate due to cardiovascular disease. Both male and female employees are at risk; males are simply at greater risk on selected factors.

Indicative of what can be done in the area of coronary risk screening/modification is Kimberly-Clark's Health Management Program. A staff of thirty-five full-time and part-time personnel tailors a risk-modification program to each participating employee's needs. Exercise facilities and classes aimed at curbing overweight, smoking, high blood pressure, and other risk factors afford personnel a variety of opportunities for better health.[10] Some of the benefits anticipated from this program, and others like it, include improved morale, better job performance, reduced absenteeism, early disease detection, and a competitive edge in recruiting.

This study raises some important questions for future research consideration. Primary among them is the question, Are male employees at greater coronary risk than female employees because they are male or because they tend to occupy a disproportionately greater share of higher-level positions? For example, in the organization studied, the male/female differential in hierarchical level was highly statistically significant in favor of the males. In fact, there were so few females in middle and upper-level management positions that it was impossible to control for hierarchical level for males versus females. Research is needed along the lines of the reported study while controlling for both sex and hierarchical level.

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[1] National Center for Health Statistics, U.S. Department of Health, Education and Welfare, *Monthly Vital Statistics Report*, March 30, 1978, 26, Supplement 2.

[2] J. Stamler, "Primary Prevention in Mass Community Efforts to Control the Major Coronary Risk Factors," *Journal of Occupational Medicine*, January 1973, 15, pp. 54-59.

[3] W. R. Boxx and J. R. Chambless, "Preventive Health Maintenance for Executives," *California Management Review*, Fall 1975, 18, pp. 49-56. Cf., R. Kreitner, "Employee Physical Fitness: Protecting an Investment in Human Resources," *Personnel Journal*, July, 1976, 55, pp. 340-344. Cf., J. R. White and G. Steinbach, "Motivating Executives to Keep Physically Fit," *Harvard Business Review*, March-April 1978, 56, pp. 16 + 184-186.

[4] Report of Inter-Society Commission of Heart Disease Resources, "Primary Prevention of the Atherosclerotic Diseases," *Circulation*, 1970, 42, pp. A-55 – A-95.

[5] J. B. Henderson and A. J. Enelow, "The Coronary Risk Factor Problem: A Behavioral Perspective," *Preventive Medicine*, 1976, 5, pp. 128-148.

[6] American Heart Association, *Heart Facts*, 1980, p. 15.

[7] "Unhealthy Costs of Health Care," *Business Week*, September 4, 1978, No. 2550, pp. 58-68.

[8] National Center for Health Statistics, ibid.

[9] T. H. Holmes and R. H. Rahe, "The Social Readjustment Scale," *Journal of Psychosomatic Research*, 1967, 11, pp. 213-218.

[10] R. E. Dedmon, J. W. Gander, M. P. O'Connor, and A. C. Paschke, "An Industry Health Management Program," *The Physician and Sportsmedicine*, November 1979, 7, pp. 56-67.

Business and the Arts: A Reciprocal Relationship

C. EDWARD KUR
ERIK KNUDSON

Many managers of American business firms increasingly realize that the arts and business have much to offer one another. Managers see the arts as important for maintaining a viable business environment, and people in the arts view business as important in developing the nation's cultural resources. For artists and managers of cultural institutions, business is a source of financial support that should not only be intelligently cultivated, but must also be fairly reciprocated.

Although estimates vary widely, the level of business' financial support of the arts in the United States has grown from approximately $20 million in 1967 to $250 million in 1978. The number of contributing companies is as significant as the dollar amounts. For instance, in 1976 the Business Committee for the Arts conducted a study of over 68,000 companies. These companies were responsible for 83 percent of the total United States sales volume that year. Significantly, 29,000 of these companies, or about 42 percent, provided financial support to one or more artistic or cultural endeavors.[1] Likewise, a 1970 study by the National Industrial Conference Board determined that 70 percent of America's largest corporations contribute to the arts.[2]

Corporate contributions have supported a variety of artistic and cultural activities. Business people broadly define the arts to include music, dance, painting, sculpture, theater, films, museums, libraries, park programs, and literature. Figure I shows that museums, musical performances, and performing arts centers experience the widest base of support. However, Figure II suggests a trend toward much more support to public radio and television. This trend is undoubtedly motivated by a desire to maximize return on the cultural investment by investing in institutions that serve the greatest number of people.

REASONS FOR SUPPORT

Both the number of corporations and the amount of their contributions have shown increases in recent years. The reasons for this increased support range from such nebulous motivation as "business social responsibility" to the practical point of view that support of the arts makes good business sense. In this "business sense" category, one might speculate that IBM's recent support of the Dresden and China shows, both of which drew nearly 6,500 people daily to the National Gallery, was at at least partially related to a desire to cultivate vast markets for business machines in China and East Germany. The support by Time, Inc. of "The Search for Alexander," also at the National Gallery, may have been partially motivated by the company's plans to

The relationship between the business and cultural segments of a community can be mutually beneficial. This article explores various aspects of that relationship both nationally and locally.

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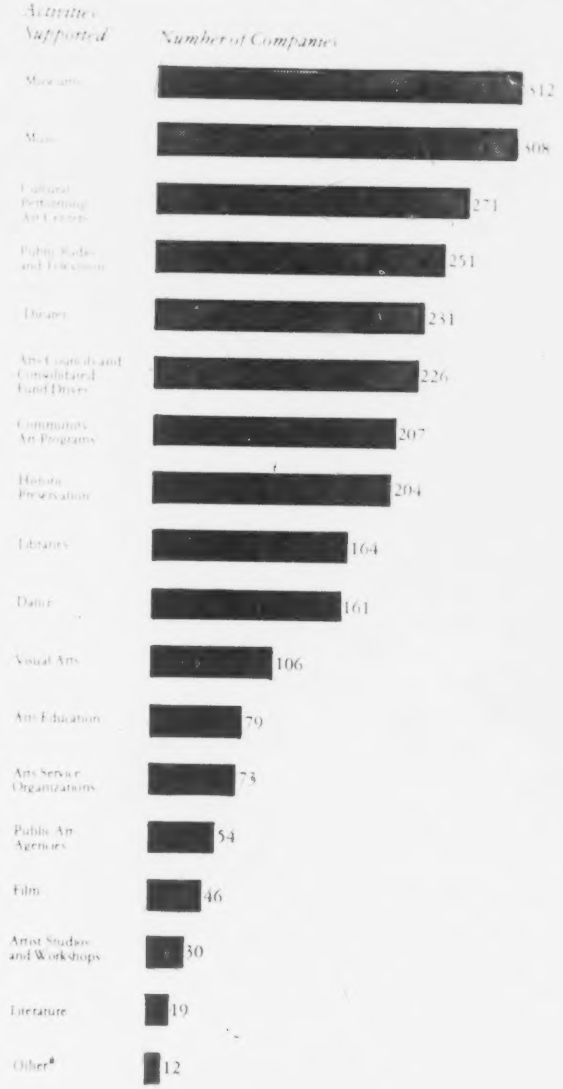
FIGURE 1

ARTISTIC AND CULTURAL SUPPORT



*Includes art purchases, parks programs, art galleries, art mobiles, interior design, free and low cost events, historical societies, science centers.

Source: A Guide to Corporate Giving in the Arts, (New York: American Council for the Arts) p. 383. Survey of 359 companies.

develop a book, a television series, and to produce and sell replicas of artistic pieces exhibited in the show.[3]

Businesses also experience a variety of indirect benefits from their support of the arts, such as increased public awareness of the corporation, a corporate identity as a responsible member of the community, and the ability to attract quality employees from other communities. Many managers have found that low key support of cultural projects helps promote their business and present it in a favorable light. For David Rockefeller, ''support of the arts amounts to . . . a prudent investment in community survival and growth.''

Critics of such participation contend that business should *not* support the arts unless such support *directly* enhances the profitability of the contributing firms. Milton Friedman expressed this opinion when he said, ''The social responsibility of business is to increase its profits . . . .'' Nevertheless the extent of business support for the arts indicates that a number of business people believe corporate money and energy can be appropriately channeled to support artistic and cultural activities whether or not the company experiences any direct, immediate, or measurable return.

Most managers, however, feel that their primary responsibility is to further the best interests of their companies, and they are most likely to invest company resources in the arts when they think the company will benefit. These managers and their stockholders ask if their money would not be better used for new product development, new marketing strategy, or support for charities that are not involved in artistic or cultural pursuits. Managers ask why their companies should support the arts.

One important reason for support is that where one finds the arts, one will also find people. A 1975 Harris Poll showed that of the adult population of the country (16 years of age or older) comprising approximately 145.5 million people —

—nearly three out of four attended at least one live performance of theatre, dance or music or went to a museum in the twelve months preceding the survey;

—two out of five were engaged in a craft and one more would like to do so;

—one out of five played a musical instrument and one more would like to;

—one out of six painted, drew or sculpted and another one would like to;

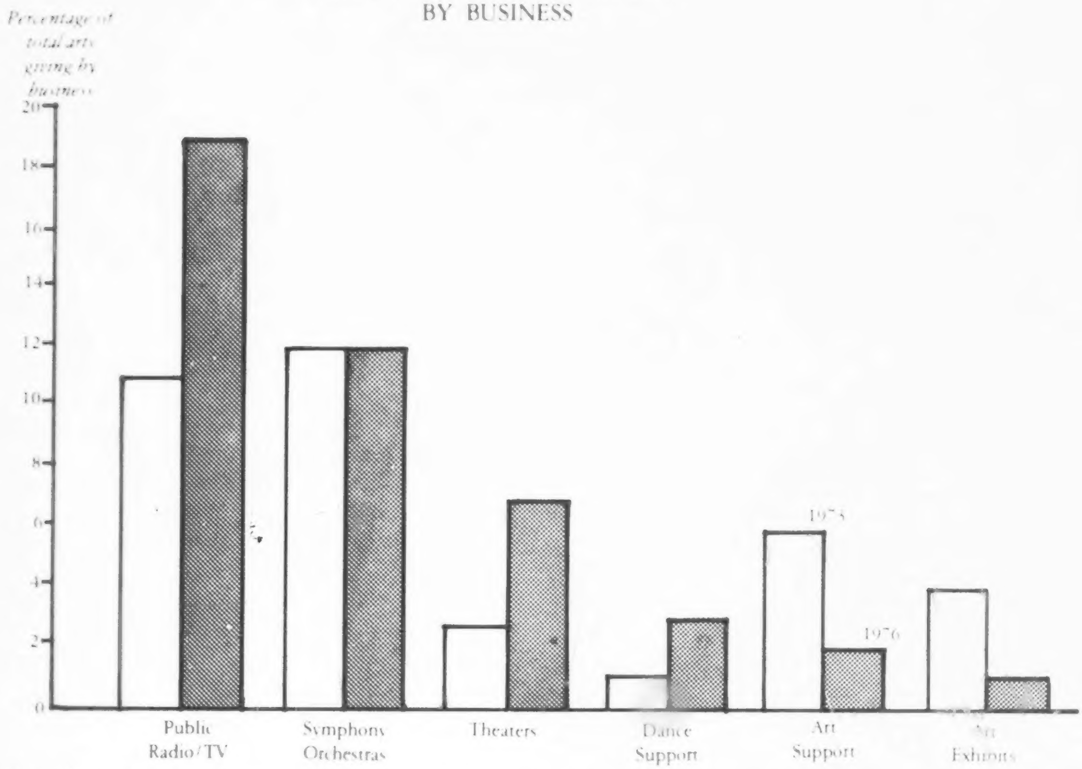
—four out of five of those who actively participated in the arts and crafts enjoyed seeing the works of others.

BUSINESS SUPPORT TODAY

Not only has total business giving to the arts grown substantially over the last decade, but the proportion of total philanthropic giving that is directed to the arts has

FIGURE II

RECIPIENTS OF ARTS GIVING BY BUSINESS



Source: A Guide to Corporate Giving in the Arts. (New York: American Council for the Arts) p. 8

also increased. In 1970 the Business Committee for the Arts estimated that 9 percent of the total corporate philanthropic contributions were earmarked for arts support. In 1976, this grew to about 12 percent.

In the past, small locally owned businesses were the source of a substantial part of business giving to the arts. Individual owner-managers would decide to support a local cultural activity and simply donated money "through the business." Managers of these small companies have traditionally directed interest to cultural projects in their communities and have become personally and directly involved. However, recent data show a shift toward more financial support coming from larger companies. For instance, Table 1 shows that between 1973 and 1976, the proportion of total business support of the arts contributed by the largest companies grew from 28 percent to 49 percent. The extent of big company support is also evident in Table 2, which shows that twenty-eight of the nation's fifty largest industrial corporations averaged nearly $495,000 each in direct contributions to the arts in 1976.

Companies that contribute to the arts typically have what could be called an art advocate, a person who is high enough in the organizational structure to persuade

TABLE 1

PROPORTION OF BUSINESS SUPPORT FOR THE ARTS CONTRIBUTED BY LARGE COMPANIES*

Year	*Percentage of support by large companies*	*Number of Companies*
1973	28	529
1976	49	758

*Companies with over $500 million in sales

Source: A Guide to Corporate Giving in the Arts. (New York: American Council for the Arts) p. 7

TABLE 2

CORPORATE GIVING TO THE ARTS
(By Size and Type of Business Firm)

Type of Company	*Rank*[a]	*Number of companies surveyed*	*Number of companies responding*	*Total given to arts*	*Average given per company*
Industrials	1-50	52	28	$15,850,833	$433,887
	50-100	28	20	4,371,843	218,592
	100-150	10	10	1,422,778	180,139
	150-200	19	17	1,177,540	69,236
	200-300	22	20	1,962,788	98,139
	300-400	17	14	400,616	28,044
	400-500	7	7	510,037	72,862
	500-1000	55	33	605,697	18,354
Industrials not ranked by *Fortune*		20	16	1,174,822	73,426
Indirect giving by Industrials		194	59	12,131,511	205,619
Commercial Banking	1-50	33	33	3,198,148	96,914
	unranked	16	14	228,546	16,325
Diversified Financial	1-50	11	11	600,699	54,609
	unranked	1	1	9,760	9,760
Insurance	1-50	15	14	3,312,088	236,577
	unranked	4	4	127,518	31,879
Retailing	1-50	8	8	2,451,513	306,439
	unranked	4	4	106,601	26,650
Transportation	1-50	9	8	557,249	69,656
	unranked	0	0		
Utilities	1-50	16	16	1,184,525	74,033
	unranked	46	45	1,367,649	30,392
Indirect giving by Nonindustrials		165	69	3,174,193	46,003
Total Industrials		194	174	$40,189,266	$230,973
Total Nonindustrials		165	158	$16,318,519	$ 98,900

Source: A Guide to Corporate Giving in the Arts (New York: American Council for the Arts) pp. 580-581.

[a]Ranked according to size by *1977 Fortune Double 500 Directory*.

the organization to contribute. That person sells the idea to management and attempts to make concern for art projects the company's concern. Frequently, the advocate's pet projects are ultimately supported by the company.

COOPERATION BETWEEN BUSINESS AND THE ARTS

It is important for the art organization to remember that business people expect the business aspects of artistic and cultural organizations to be handled efficiently. Business people expect organizations that receive company financial support to report how the funds were used. In particular, business people demand responsible financial management and assurance that the purely artistic functions of the recipient organizations receive the maximum benefit from any support given.

With few exceptions, neither the arts nor business can be given very high scores for finding imaginative methods of giving that are especially attractive to business organizations. Innovative fund raisers have found a variety of methods for individuals to give painlessly, but little has been done to make contributing more palatable for business firms.[7] Furthermore, the arts community itself often asks for business support without communicating an awareness of what the arts have to offer business in return. Corporate giving differs fundamentally from personal giving in that an individual often has an emotional basis for giving, but a corporation must base its giving on more pragmatic reasoning. Consequently, managers must be convinced that their firms will receive some benefit from contributions to the arts.

BUSINESS AND THE ARTS IN PHOENIX AND ARIZONA

Phoenix and the Valley of the Sun have experienced increased public participation in the arts and related cultural activities. For example, in 1978, the combined attendance at the Arizona Ballet, the Phoenix Symphony, the Phoenix Little Theatre, the Heard Museum and the Phoenix Zoo reached a total of 1.3 million people. This is substantially greater than the 915,000 total attendance at all forty-one Phoenix Suns games plus the seven ASU football games and the Fiesta Bowl. Therefore, if Phoenix business people are looking for company visibility, they can find it in the cultural sphere as well as in sports and other commonly used media.

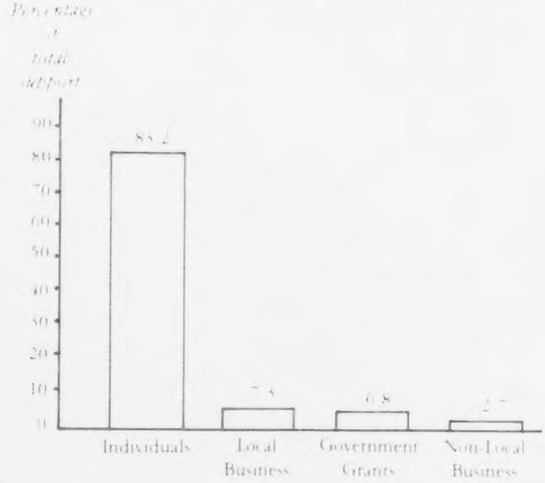
The Phoenix Art Museum conducted a survey in 1978 to discover who supported six major artistic, cultural and educational organizations in the Phoenix area: the Phoenix Symphony, the Phoenix Art Museum, the Heard Museum, the Phoenix Little Theatre, the Arizona Ballet and the Phoenix Zoo.[10] Results of this survey are summarized in Figure III. It is significant that a total of 10 percent of the support was contributed by business, and most of this business support comes from local firms. The relatively low level of support from businesses with headquarters outside of Arizona is particuarly disappointing to artists and administrators of cultural organizations. Companies in this category employ nearly two-thirds of Arizona's private sector labor force yet account for only about one-fourth of business giving to the six cultural organizations surveyed.

According to Edward Jacobson, a member of the Arizona Commission on the Arts, "Only a few horses are pulling the whole wagon." The art museum's survey substantiates this viewpoint. In one question, the arts organizations were asked to list their ten largest contributors during the previous five years. Although the answers are confidential, many of the same businesses appeared repeatedly on the six lists. In fact, only twenty-six companies made up the entire group. Of these, twenty are local and six are headquartered out of state.

Arizona business people who do support the arts often do so for traditional business reasons. For example, one prominent company president indicated that he has met many clients in arts circles in the Valley; he claims that the company's identification with the arts helps maintain its image as a high quality, responsible and professional organization.

FIGURE III

SOURCES OF SUPPORT FOR SIX PHOENIX CULTURAL AND ARTS ORGANIZATIONS



Source: Survey conducted by the Phoenix Art Museum, 1978.

Phoenix arts organizations are also becoming more sophisticated in their approaches to businesses. The Phoenix Art Museum recently initiated a variety of services and programs designed to serve the business community in return for financial support. One such program, called Corporate Sundays, enables a firm to buy full membership in the art museum at attractive rates for all of its employees during a specific Sunday. A "Company Sunday at the Art Museum" becomes the basis for informal socializing among employees, providing an attractive yet inexpensive benefit that can help improve organizational climate and morale. Amy Jennings, director of the art museum's business and professional support program, reported that Corporate Sundays have been responsible for substantial increases in attendance. People who might otherwise not visit the art museum are more inclined to visit when accompanied by friends from work on a Corporate Sunday. She also said that many of these people donate to the museum's contribution box, become members of the art museum, and buy from the Museum Shop during their visit. One Phoenix firm, which had contributed $150 to the Phoenix Art Museum the previous year, immediately increased its support to $500 when management was told that the larger contribution could be used to finance a Corporate Sunday for all of its employees.

The Phoenix Art Museum recognizes that business people want something in return for financial support. As a result, business and professional dollar support for the museum increased by 24 percent during the 1977-1978 fiscal year.

At the state level, government and the arts joined forces in 1966 to form the Arizona Commission on the Arts. This commission is the official state agency charged with stimulating public interest in cultural resources and with ensuring the growth of the role of cultural resources in the life of Arizona communities.

In 1978 the commission was awarded a $480,000 grant for distribution among eight Arizona artistic and cultural institutions, the largest grant ever awarded by the National Endowment for the Arts to any state arts institution in the country. It was also the first grant of its kind awarded to a statewide consortium of arts institutions. The consortium included, in addition to the Arts Commission, the Arizona Theatre Company, Arizona Opera Company, Flagstaff Festival of the Arts, Museum of Northern Arizona, Phoenix Symphony Association, Scottsdale Center for the Arts, Tucson Museum of Art, and Tucson Symphony Orchestra.

The Arizona Commission on the Arts sponsors several programs including traveling exhibits, assistance to artists on business aspects of their work, and programs to bring performing artists to outlying Arizona communities. One such program, "A Salute to the Arts," was held February 19, 1980 and underscored the connection between business and the arts. During the program, Governor Bruce Babbitt presented awards to two Arizona business people in recognition of outstanding service to the arts in Arizona.

CONCLUSION

Business involvement in the arts has experienced a long-term increasing trend in the United States. Usually, involvement is highest when business managers believe their firms directly benefit from high quality artistic expression and when business people believe art organizations conduct their business functions professionally.

Some artists and business educators may try to persuade managers to support the arts on the grounds that doing so is the firm's social responsibility. This line of reasoning, however, is likely to be ineffective because managers are likely to be trained and conditioned to make decisions on the basis of optimizing, or at least enhancing, *organizational* effectiveness, not *societal* effectiveness. Instead, artists should develop and express an understanding of the specific positive contribution their art can make to each individual business.

Business managers in Arizona can follow the leadership already shown by managers who have demonstrated they can enjoy the arts and at the same time reach a potential market of friends, consumers, and employees.

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[1] Susan E. Wagner, editor, *A Guide to Corporate Giving in the Arts* (New York: American Council for the Arts, 1978), p. 7.

[2] Gideon Chagy, editor, *The State of the Arts and Corporate Support* (New York: Paul S. Erikson, Inc., 1971).

[3] Joseph McLellan, "Corporations Hope to Expand Identity with Sponsorships," *The Arizona Republic* (August 19, 1979), p. ET-5.

[4] "Business and the Arts — Why," *Across the Board* (May, 1978), p. 87.

[5] "A New Mission for Business," *Saturday Review* (February 28, 1970).

[6] Edward Jacobson, "Can a No-Nonsense Business and a High Born Cultural Organization Have an Affair in Phoenix and Find Happiness Together?" Presentation to Phoenix Downtown Rotary Club, August 11, 1978.

[7] Wagner, *Guide*, p. 8.

[8] Nina Kaden, *Artist and Advocate: An Essay on Corporate Patronage* (New York: Renaissance Editions, Inc., 1967).

[9] Jacobson, "Can a No-Nonsense Business . . ."

[10] Ibid.

Profile of Business Strategies in Arizona

FRANK SHIPPER

A company does not exist in a vacuum. The strategies that a company develops are related to a variety of outside influences including such key forces as the rate of technological change, the growth of the industry itself, the competitiveness of the market, the educational level of employees, the degree of government intervention, and many others.

In the course of operation, a business engages in five basic internal activities: production, accounting/finance, marketing, personnel, and management. The strategies developed for each of these activities are affected by particular external forces: production, for example, is affected by the rate of technological change in the industry; accounting and finance are affected by economic conditions.

An important task of management is to analyze the nature of these external forces and determine the appropriate strategy that will be followed in each of the various internal company activities. The purpose of this article is to help managers realize the importance of analyzing their companies in terms of the way they adapt the strategies of the internal activities to the external forces that influence business. A firm's ultimate success or failure is determined by whether the strategy is appropriate for the external environment.

Production scheduling, for example, is an internal activity engaged in by all manufacturing and many service organizations; it can be based on firm orders or on speculative forecasts. In the automotive industry both General Motors and Ford have for years used firm orders, while Chrysler has used speculative forecasts. When the automotive market turned down in 1979, Ford and General Motors were able to respond more rapidly than Chrysler due to the superiority of their scheduling information. Thus, Ford and General Motors had obtained a better match between their internal function, production, and their specific external forces, the competitive market. As a result, Chrysler sustained large losses and had to offer large discounts and cash rebates to sell excess production.

THE PROCESS OF SUCCESS

The selection of the appropriate match across all five business functions is facilitated by managerial adaptation, natural selection, and feedback.

Managerial Adaptation

Managerial adaptation is the active effort by top management to align internal activities with external forces in the environment. For example, after Chrysler

This article discusses how a firm must match the strategies of its internal activities to external forces in the environment. A survey of Arizona firms conducted by the author profiles business strategies in five primary environments.

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had discovered it had built up a huge inventory, Chrysler's president switched to a production scheduling technique based on dealer orders. Following the pursuit for an improved match, managers first map the external forces. Then they analyze the internal resources such as capital structure, production facilities, marketing expertise, design capabilities, and available employees. Finally they establish objectives and strategies that are in keeping with external forces and internal capabilities.

Coca-Cola, for example, viewed the external forces and found that the prime market of soft drink consumers would be decreasing as the last of the postwar baby boom generation matured. Furthermore, a market survey showed that Taylor was the second most recognized name in wines, and California wines were superior to New York wines. They then analyzed their internal resources and found good distribution channels, marketing expertise, and capital resources. Coca-Cola then purchased Taylor wines and two California vineyards as they set out to become number two in wine sales by 1985. To fulfill this objective they have established the following strategies: (1) Promote a new line called Taylor California Wine; (2) price this line in a niche unoccupied by competitors; and, (3) promote the wines heavily using competitive advertising.

Natural Selection

Natural selection is Darwin's principle of survival of the fittest as applied to organizations. This principle means the organizations that can adapt to the changing external forces will survive and grow; those that are less adaptable will decrease in relative size, diminish in sales, and eventually become noncompetitive. In the automobile industry Chrysler and American Motors are at the stage where their market share has diminished and they may become noncompetitive. Packard, Studebaker, Kaiser, and others have already passed through that stage. Obviously, successful managerial adaptation at Chrysler and American Motors will enable those organizations to survive the natural selection process.

Feedback

Managers need feedback to develop the adaptation process. Disappointments can be valuable if they are utilized to become part of a learning experience. Even large enduring firms can falter in their pursuit of success. For example, Ford produced the classic failure, the Edsel. Feedback, however, is the corrective mechanism that allows the managers to take steps in adjusting to external forces. Hence, five years after the Edsel, Ford Motor Company produced the Mustang, one of the industry's great successes. To complicate the process of managerial adaptation even further, the ideal adaptation is always changing because the external forces are in a constant state of flux. Thus, Ford has produced a succession of models such as the Maverick, Pinto, Granada, Fairmont, Fiesta, and major revisions to their older models in an attempt to find an appropriate product mix for the automobile industry.

Sales reports, inventory levels, and profit and loss statements are all forms of feedback. The manager who takes both the positive and negative information from these reports, investigates the underlying causes, and then takes the actions that are indicated appropriate will be fine-tuning the organization to the external environment.

SURVEY OF ARIZONA BUSINESS STRATEGIES

How do Arizona firms facilitate the adaptive processes and ensure survival? The remainder of this article shows how a match is achieved between external forces and internal activities. This information takes the form of a five-set profile, which reflects the relationship between the external forces and the five internal activities of production, marketing, accounting/finance, personnel, and management. The external forces are subdivided into technological, competitive, economic, social, and political, as shown in Table 1. The subdivisions indicate a parallelism between the primary external forces and the internal activities responsible for dealing with those forces. For example, a relationship exists between the external forces exerted by the technological environment and the internal process of production. In a similar vein, the accounting/financial processes are related to the economic environment; marketing processes are related to the competitive environment; personnel processes are related to the social environment; and management processes are related to the political environment.

As in the case of every piece on the chess board, every activity can be critical to survival and can uniquely enhance the outcome. Also, as in chess, for every move on one side of the board, there are countermoves on the other side. Most of the time the organization cannot control the external forces in the environment; therefore top management must be prepared to analyze those forces and have its own countermoves ready. The astute manager will thus develop a game plan through a periodic review to determine whether the current activities are still an appropriate match with the external environment.

TABLE 1

MATCHING THE INTERNAL ACTIVITIES TO THE EXTERNAL FORCES[a]

External Forces[b]	*Internal Activities*
Technological Environment	Production Process
Rate of Change	Automation
Patent Protection	Research and Development
Technological Advancement	Product Design
Competitive Environment	Marketing Process
Market Life Cycle	Pricing
Price Competitiveness	Marketing Campaign
Product substitutions	Selectivity
Economic Environment	Accounting/Financial Process
Cost of Capital	Debt Structure
Inflation Rates	Accounting System
Energy Dependence	Risk Posture
Social Environment	Personnel Process
Educational Level	Leadership Style
Age Distribution	Job Design
Career Expectations	Social Commitment
Political Environment	Managerial Process
Government Regulations	Time Perspective
Protective Regulations	Coordination
Antitrust Laws	Training and Development

[a] These lists are not meant to be comprehensive: they are meant to be representative of some of the more important variables affecting organizational performance. The specifics of the list will vary from industry to industry and over time.

[b] For discussion of the development and psychometric properties of the questionnaire, see Frank Shipper, "Development of a Questionnaire for Analysis of Business Strategy," *Proceedings of the American Institute for Decision Science*, Ninth Annual Meeting, Western Regional Conference, Phoenix, Arizona, March 12-14, 1980.

Source: Developed by the author.

Survey Methodology

To obtain the data necessary to profile business strategies in Arizona, a mail questionnaire was sent to 118 vice presidents of major corporations in the state. Forty-nine returned questionnaires, for a response rate of 42 percent.

The questions were divided into two major categories: organizational processes and external environment. Each of the two categories was further subdivided into five subdivisions, which correspond to those shown in Table 1. Under each subdivision, several questions were asked in order to profile the specific process or environmental area. A sample question from the production process is shown in Table 2. The subjects were asked to mark on the scale where their company or industry stood with respect to the specific area of interest.

TABLE 2
SAMPLE QUESTION

Type of Research and Development

Basic exploratory research describes the type of research our firm does.	*Our firm combines both exploratory research along with research applied to products and ideas already being discussed.*	*Our firm concentrates on applied research.*

Contingency tables were constructed for presentation of results (Tables 3 through 7). They consist of the internal activities displayed as the vertical axis, and the respective external forces as the horizontal axis. The diagonal lines in Tables 3, 5 and 7, were drawn to indicate a significant relationship between the external and the internal activities. In other words, the diagonal line indicates that the companies surveyed do respond to the external forces through their internal activity. A horizontal line, as in Tables 4 and 6, indicates that there tends to be a common set of internal activities shared by all companies surveyed in that particular functional area. Apparently the external forces did not have as strong an effect for those firms. These tables thus show how Arizona businesses have adapted their strategies to the pressures of the external environment.

SURVEY RESULTS

Production Strategies and the Technological Environment

As shown in Table 3, most companies, those that fall on the diagonal, appear to be responding appropriately to the particular external forces. The low end of the diagonal represents companies that exist in an environment characterized by change and are also characterized by a product low in technological sophistication. In addition, few design changes have occurred and little advancement in productivity has been made. The organization's processes are profiled as a low commitment to research and development, which is applied in nature when it does occur. At other times these firms are content to rely on the technology others have developed. Furthermore, they tend to put little technological emphasis on the production process and lean more to processes that are mainly manual in nature. Thus, the low productivity and low product technology of the industry can be seen as an outgrowth of the strategies pursued by the companies existing in that industry.

TABLE 3

PRODUCTION STRATEGIES IN RELATION TO TECHNOLOGICAL ENVIRONMENT
(Number of Companies)

Technical Emphasis of Production Process	*Rate of Change in the Technological Environment* *Low*	 *Moderate*	 *High*
High	*a* 0	*b* 4	*c* 5
Moderate	*d* 4	*e* 15	*f* 5
Low	*g* 5	*h* 0	*i* 0

$\chi^2 = 22.74$ d.f. = 4 $p \leq .0001$

Source: Survey of Arizona business conducted by the author.

At the other end of the diagonal, a dynamic industrial environment exists, such as in the electronics industry, in which the use of advanced technological processes are widespread; frequent design changes occur; and increases in productivity of 10 to 15 percent per year are common. In order to adapt to this environment, managers have a high commitment to basic research and development. Furthermore, they tend to automate their production process and emphasize the technological needs of the process.

In reality, many of the firms do not fall into either of the two extremes of the technological environment, nor do they follow the extremes of the response strategies. Fifteen of the fims perceive themselves to be in a moderately changing environment and have responded with moderate strategies in an attempt to cope with their particular external forces. However, those organizations above the diagonal can become technological leaders in their industry. In the short-run, their research and development expenses may depress profits below the industry average. However, if successful, they can gain a competitive advantage, increase market share, lower costs, increase profits, and become innovative leaders.

Those below the diagonal are technological followers in their industry. They could be milking a "cash cow" which is in a mature or declining industry. In time, their product could become technologically obsolete and their equipment unprofitable to run. However, if they are taking the proceeds from the short-run gains and reinvesting in a growth industry, this may be a viable strategy. The important point is that the strategic planners must be aware of the nature of their processes and the possible outcomes they will lead to.

No companies were found to be in the extreme areas (cells *a* and *i*) from the diagonal. Logically one could expect a company in a relatively unchanging environment to profit considerably by becoming the low-cost producer through automation. However, automation requires a relatively high degree of technological sophistication, yet these firms fail to invest in research and development that is required to obtain such sophistication. Thus, the industry does not appreciate the advantages of automated processes and is not tolerant of the short-term expenses.

At the other end of the off-diagonal (cell *i*), again no firms are found. Since the environment requires a high degree of research and development, the members of the organization are highly sophisticated technologically. As a secondary consequence, this sophistication spills over into the production process and yields automation, high short-term expenses, but also high long-run cost savings, lower per unit cost, increased price competitiveness, increased market share, and larger long-run profits. Thus, these latter firms are following what is called the learning-curve production strategy. Simply stated it says that as the number of units of production is increased, the unit of cost will be reduced due to the increased knowledge gained about the production process. To put this strategy into effect, however, requires a high degree of commitment, financial strength, and a willingness to forego immediate returns for long-term gains.

The current trend suggests that more and more products will advance from the mechanical to the electrical-mechanical to electronic operations and will be produced on a highly automated assembly line. In addition, end products will have great diversity, but will be built from standard modular components. The relatively cheap cost of labor in undeveloped countries will drive manual production processes overseas. However, United States firms, which have learned to offset rising labor costs with high investment in technology, will be able to offset the labor cost advantage of undeveloped countries. In short those companies in the high-rate-of-change environment will flourish and survive.

Accounting/Financial Strategies and the Economic Environment

In Table 4, the profile of the accounting and financial strategies of Arizona firms in relation to the economic environment are presented. The external economic environment includes such specific forces as the growth in sales volume of the industry, the riskiness of investment, and the cost of capital for the industry. The horizontal scale, with respect to the accounting and financial processes, shows whether the organizations used long or short-term debt structure, internal or external financial sources, had high or low willingness to accept risk, and showed internal or acquired growth. The center line on the profile demonstrates that most firms follow a mixed or balanced approach regardless of the environment they are in. This finding suggests a wide following for the conventional wisdom of offsetting current liabilities with short-term debt, offsetting long-term liabilities with long-term debt, expenses from current income, and long-term investment capital appreciation accounts.

However, two alternative strategies can be suggested. If a company is in a high growth industry where the cost of equity capital is low due to further growth potential, a firm can profit by being willing to take risks, using leverage, and paying out low dividends for purposes of internal reinvestment. Through this strategy a firm may build its industrial power base faster than competitors. The opposite strategy applies to firms in a low growth industry where the cost of equity capital is high due to low growth potential. Such firms can use a long-term debt structure to avoid risk and reduce financing cost, and acquire established firms in order to build market-share.

Although these strategies have been suggested, they do not appear to have developed a strong following in Arizona. One reason may be that only one firm saw itself as being in a high economically stimulated growth industry. This finding may say that either many of the large firms in Arizona are in low growth segments of the economy, or the recent downturn in the economy has biased their perspective, or opportunities are waiting for those able to see them.

TABLE 4

ACCOUNTING/FINANCIAL STRATEGIES
IN RELATION TO
ECONOMIC ENVIRONMENT
(Number of Companies)

	Conditions of Economic Environment		
Emphasis of Accounting/Financial Processes	*Low Growth, High Cost*	*Moderate Growth Average Cost*	*High Growth Low Cost*
Low-risk, Long Term External Financing	*a* 4	*b* 1	*c* 0
Balanced Approach	*d* 14	*e* 10	*f* 1
High-risk, Short Term, Internal Financing	*g* 4	*h* 3	*i* 0

$\chi^2 = 50$ d.f. = 4 $p \leq .07$

Source: Survey of Arizona business conducted by the author.

Marketing Strategies and the Competitive Environment

As seen in Table 5, a distinct set of marketing strategies is developed, depending on the competitiveness of the environment. At the low end of the diagonal are firms in a growth environment with total industry sales increasing more than 10 percent per year. Since the market in such an industry is still relatively new, neither government regulations nor consumer concerns are a consideration. In addition, substitutes for the product are relatively unavailable. In this environment the major marketing consideration is to make consumers aware of the product. As an appropriate response, firms use an informative marketing campaign aimed at creating awareness of the product to stimulate initial demand. Even the packaging of the product is designed to be informative. Since the market is ill-defined because of its newness, mass marketing is used. In addition, since competitors are few, there is a tendency to skim the top off the market through a higher pricing policy. Polaroid followed this practice when they introduced a totally new camera, the SX-70 instant color camera. As competition was introduced by Kodak, less expensive models were produced by Polaroid.

TABLE 5

MARKETING STRATEGIES IN RELATION TO COMPETITIVE ENVIRONMENT

(Number of Companies)

Emphasis of Marketing Processes	*Type of Competitive Environment*		
	Growth	*Maturing*	*Saturated*
Target Marketing Establishing Market Niches	*a* 0	*b* 5	*c* 2
Mixed	*d* 10	*e* 13	*f* 0
Mass Marketing Increasing Market Share	*g* 3	*h* 2	*i* 0

$\chi^2 = 12.06$ d.f. = 4 $p < .02$

Source: Survey of Arizona businesses conducted by the author.

At the top end of the diagonal, the opposite environmental conditions exist in which the overall volume of the industry is beginning to decline, consumer protection and government regulations are prevalent, and substitutes for the product from other industries are available. In response, these companies are trying to find a market niche. Since the marketplace is familiar with the product and the market is well defined, target marketing is used, directed toward the end-use consumer. In addition, price cutting and "no frills" functional packaging may be used to hold down the cost to the consumer and thereby increase market share.

Table 5 shows that only a limited number of firms are following the extremes of the marketing strategies: thirteen firms described themselves as being in a growth industry, twenty in a maturing industry, but only two in a saturated industry. Those above the diagonal can be considered marketing innovators and those below, followers. Fifteen of the firms in either a growth or maturing industry are above the diagonal trying to get a step on their competitors, while only two are lagging behind the trends. However, twenty-three firms are following a mixed strategy. They are following a two-pronged attack of trying to increase overall market share and at the same time trying to develop a strong and stable niche in the market to protect themselves from competition in the future.

Again, the extreme boxes (cells *a, i*) are empty because they represent ineffective strategies. The form of marketing that is appropriate in a growth market would be inappropriate in a saturated market because the customer would already be familiar with the product, and the mass marketing impact of the dollars spent would be too diluted relative to all the other competitors' target-marketing approach. At the opposite end, target-marketing would be ineffective in a growth market because the market profile has not stabilized and many potential users would be overlooked. Thus, strategic planners must be aware of the market environment they are in to plan their marketing strategies effectively.

Personnel Strategies and the Social Environment

Table 6 shows the personnel strategies a firm might follow in relation to the social environment from which those employees would be drawn. The social environment was delineated based on the educational level of entry-level employees, the use of formal individual development programs in the industry, and the use of career ladders in the industry. The internal personnel processes were defined by the leadership style, internal versus external promotion policy, economic versus noneconomic rewards, union posture (strongly opposed or accepting), and social responsibility.

Overwhelmingly, thirty-seven of the forty-seven firms found themselves responding with one type of personnel strategy regardless of the social environment their workers were drawn from. This strategy is characterized by a participative leadership process in which decisions are discussed, input is sought, but the manager makes the final decision. Vacancies within the organization are filled through both internal promotions and external hirings as the situation indicates; rewards for performance are both economic and noneconomic as appropriate for the individual employee. In addition, these firms do not actively oppose unionization nor do they place importance on social responsibility.

The significance of this profile is the advancement shown from more traditional but outdated alternatives of personnel strategies: autocratic leadership, strong and active opposition to unions, sole use of lower-order psychological rewards such as money, myopic promotions only from within, and managerial responsibility for profits only. From this profile, the humanistic managerial policies of such contemporary management theorists as Maslow, McGregor, and Likert, appear strongly evident in Arizona.

TABLE 6

PERSONNEL STRATEGIES IN RELATION TO SOCIAL ENVIRONMENT

(Number of Companies)

Emphasis of Personnel Processes	*Social Environment of Industry* *Low Educational Level, Little Formal Training Short Career Ladders*		*High Educational Level, Much Formal Training, Long Career Ladders*
Democratic Leadership, Noneconomic Rewards, High Social Responsibility	*a* 0	*b* 2	*c* 1
Participative Leadership, Both Types of Rewards, Mixed Responsibility	*c* 4	*e* 22	*f* 11
Autocratic Leadership, Economic Rewards, High Responsibility to Owners.	*g* 2	*h* 2	*i* 3

$x^2 = 3.27$ d.f. = 4 $p \leq .51$

Source: Survey of Arizona businesses conducted by the author.

Managerial Strategies and the Political Environment

Table 7 profiles the managerial strategies in relation to the political environment. The political environment with respect to government intervention has become an area of increasing concern, pressure, and demands for which managers must develop appropriate responses. These were not as well defined, however, as in either the technological or marketing area, perhaps due to the newness of this area as a major concern and to the haziness of the political process and uncertainties about the appropriate responses.

TABLE 7

MANAGEMENT STRATEGIES IN RELATION TO POLITICAL ENVIRONMENT

(Number of Companies)

Emphasis of Managerial Processes	*Political Environment* *Low Governmental Intervention*	*Moderate Governmental Intervention*	*High Governmental Intervention*
Formal, Externally Focused, Long Range Coordination	*a* 1	*b* 7	*c* 3
Combined Focus of Medium Range to Coordination	*d* 2	*e* 23	*f* 5
Informal, Internally, Focused, Short Range Coordination	*g* 2	*h* 0	*i* 1

$x^2 = 11.81$ d.f. = 4 $p \geq .02$

Source: Survey of Arizona businesses conducted by the author

At the lower end of the diagonal were companies characterized as being in a political environment low in government intervention. Specifically, government regulations such as the Equal Employment Opportunity Act, Environmental Protection Act, and Occupational Safety and Health Act, have relatively little impact, and antitrust cases are not frequently pursued within the industry. In addition, political considerations are not a major consideration in decision making; corporate lobbyists are also uncommon.

Appropriately, the managerial strategies were characterized by informality in goal setting and coordination. The managerial perspective was short-ranged and focused internally. Training and development programs were primarily used for job rotation, special assignments, coaching by senior management, and in-house programs.

At the opposite end of the diagonal are companies with high government intervention in which antitrust is frequently pursued by the government, and governmental regulations such as EEOA, EPA,and OSHA have a relatively high impact. In addition, corporate lobbyists are common and political considerations are given high priority during decision making.

In response, management had developed a long-range perspective on external forces. In addition, coordination, and goals and objectives had been formalized within the organization. To increase their awareness, these firms used out-of-house training such as formal programs at universities, professional meetings, and seminars to develop and train their managers.

Most organizations were not at either extreme in terms of their responses. However nine firms were in an environment with high governmental intervention, but only five firms experienced low intervention. Again, those ten above the diagonal can be interpreted as leaders and those seven below as slow in responding to the political pressures. The leaders may be trying either to influence political decisions or to obtain early warning of potential changes in regulations affecting them in order to develop appropriate responses ahead of their competitors. This could give the leaders a competitive advantage in the long-run.

CONCLUSION

The external environment affecting organizations has been surveyed in its five principal components — technological, economic, competitive, social, and political. Simultaneously, strategies for the internal processes — production, accounting/finance, marketing, personnel, and management—were also surveyed. The resulting profiles showed the relationship of each facet of the external environment to the corresponding internal activities responsible: technological environment in relation to the function of production, economic environment in relation to the function of accounting/finance, etc.

The results revealed that a single predominant strategy had evolved for responding to the economic and social influences, but that a variety of strategies had evolved for responding to the technological, competitive, and political environments, depending upon the external forces. In each of these three areas, companies following particular strategies were identified as leading, matching, or following, based on the situation.

The information presented in this article should be viewed as additional feedback for the practicing manager. The position of any particular firm can be plotted on each profile. Armed with that information, the manager should determine whether the firm plotted is a leader, matcher, or a follower with respect to the particular industry concerned. The manager could then determine what steps need to be taken to better adapt the firm to the external forces in the environment.

The message is that natural selection works in business: managerial adaptation must be a continuous process unless a firm wants to pass into antiquity. Fortunately, most of the firms surveyed in Arizona appear to have either found a match congruent with their environment, or are striving to become leaders and gain a competitive edge.

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[1] Edward Meadows, "How Detroit Got Stuck With All Those Cars," *Fortune*, October 22, 1979, pp. 54-56.

[2] Marshall W. Meyer and Associates, *Environments and Organizations*, (San Francisco: Jossey-Bass Publishers, 1978), p. 31.

[3] Meadows, "How Detroit Got Stuck With All Those Cars."

[4] "Coca-Cola: A Spurt Into Wine That is Altering the Industry," *Business Week*, October 15, 1979, pp. 126-131.

[5] Royal Little, "I Lost $100 Million and Had Fun Doing It," *Fortune*, August 27, 1979, pp. 106-114.

[6] Meyer, *Environments and Organizations*, p. 353.

[7] Each set of questions for the particular subdivision was examined for internal consistency using Cronbach's Alpha. Through an iterative mathematical process, those questions which did not contribute to increased reliability of the subdivision scale were eliminated. The final reliabilities obtained either approach or exceed the criteria of .50 for basic research. See J. C. Nunnally, *Psychometric Theory* (new York: McGraw-Hill, 1967).

[8] Robert H. Hayes and Steven C. Wheelwright, "Link Manufacturing Process and Product Life Cycles," *Harvard Business Review*, January-February 1979, pp. 133-140.

The Arizona Business Scene

1912

Arizona Wholesale Trade: An $8 Billion Business

Recent census and survey data have provided new insights into the vital role that wholesale trade plays in the Arizona economy. Preliminary data from the *1977 Census of Wholesale Trade*, to be released in revised form this summer by the U.S. Commerce Department, show that 3,587 Arizona wholesale establishments had sales totaling $8.1 billion, an increase of 84.3 percent over sales in 1972 when the last such census was taken.

Wholesale trade includes all establishments that are primarily engaged in selling merchandise to retailers, industrial or commercial users, or in acting as agents or brokers. For those familiar with Standard Industrial Classification (SIC) codes, wholesalers comprise SIC groups 50 and 51.

Measured in dollar volume of sales, wholesalers of groceries and related products were the largest group in the state with 1977 sales of $1.9 billion, followed by wholesalers of motor vehicles and automotive parts and supplies with $1.2 billion. These two categories accounted for 38 percent of the state's wholesale sales. The number of establishments and sales by kind of business are presented in Table 1.

A five-year comparison reveals statewide increases that reflect steady economic growth. From 1972 to 1977 the largest increases in wholesale sales occurred in machinery, equipment and supplies (up 124.6 percent), petroleum and petroleum products (up 99.9 percent), and motor vehicles and auto parts and supplies

TABLE 1

ARIZONA WHOLESALERS:
NUMBER AND SALES BY KIND OF BUSINESS

Kind of Business	*Number of Establishments*	*Sales ($Million)*
Motor vehicle & auto parts and supply	441	$1,164.9
Furniture & home furnishings	102	104.5
Lumber & other construction material	171	394.6
Sporting, recreation & hobby	57	47.1
Metals & minerals, except petroleum	64	182.6
Electrical goods	314	690.7
Hardware, plumbing & heat	205	314.9
Machinery, equipment & supplies	790	1,140.8
Paper & paper products	99	$ 118.7
Drugs & sundries	27	66.2
Apparel & notions	36	27.6
Groceries	419	1,865.8
Farm products	56	404.6
Chemicals	54	64.1
Petroleum & petroleum products	183	824.5
Beer, wine & alcoholic beverages	77	281.6
TOTAL	3,587	$8,091.8

Source. 1977 Census of Wholesale Trade. *U.S. Commerce Department (preliminary)* (up 97.4 percent). The largest single sales category, groceries and related products, was up 82.5 percent over the 1972 level.

The state's two most populous counties account for most of the sales with Maricopa County reporting 76.9 percent of all Arizona sales, followed by Pima County with 10.8 percent. The city of Phoenix alone accounted for nearly 60 percent of statewide sales. Detail on number of establishments and sales by county is given in Table 2.

TABLE 2

ARIZONA WHOLESALERS NUMBER, SALES AND PAYROLL BY COUNTY

County	*Number of Establishments*	*Sales (millions)*	*Payroll Entire Year (millions)*
Maricopa	2,331	$6,219.5	$359.0
Pima	565	876.9	63.8
Santa Cruz	107	377.1	9.9
Yuma	129	222.4	13.7
Pinal	73	93.7	6.1
Coconino	79	71.1	5.5
Cochise	69	51.4	3.2
Navajo	38	49.8	1.9
Mohave	50	39.4	2.0
Yavapai	63	32.0	2.3
TOTAL	3,587	$8,091.8	$470.9

Source: 1977 Census of Wholesale Trade, *U.S. Commerce Dept. (preliminary)*

Employees of wholesale firms received nearly one-half billion dollars in income in 1977, with county payroll data also presented in Table 2. Wholesale trade is generally characterized by large numbers of establishments employing fewer than fifty people. The average number of employees per wholesale establishment in 1977 was eleven people. Employment in the wholesale trade sector has shown steady growth with over 46,500 individuals currently employed. Employment trends over the past ten years are shown in Table 3.

TABLE 3

EMPLOYMENT IN WHOLESALE TRADE

Year	*Annual Average Employment*
1970	25,000
1971	26,800
1972	30,500
1973	33,600
1974	36,100
1975	34,600
1976	35,700
1977	39,900
1978	44,000
1979	46,500

Source: Arizona Department of Economic Security

The most recent list of Arizona wholesalers is the *1978 Directory of Arizona Wholesalers*. A limited number of these publications are available at no charge from the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The directory lists over 1,200 firms with addresses, telephone numbers, nature of business, and other pertinent information. The directory also includes alphabetical, product and geographical lists.

Wholesale trade is important to the state's economy because it provides the vital link between the producers of goods and the retail order outlets which provide 2.6 million Arizonans with the goods they demand. The rapid growth in sales and number of wholesale establishments further reflects Arizona's position as a leading economic growth area.

A Survey of Arizona Business Conditions

HAROLD FEARON

The recession has begun, and the figues show that it has finally unfolded with dramatic swiftness, according to results from the monthly business survey of the Purchasing Management Association of Arizona. Following the flat economic performance in March, April saw a steep dive in both new orders received and production. Prices continued to increase at a high rate, and employment was at a standstill, giving Arizona a double dose of bad news. The Arizona economy likely will see several months of declines, although the recession should be relatively short and fairly shallow.

The Purchasing Management Business Survey is in its eighteenth year of monthly reporting on the condition of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state. They report whether performance on six key indicators of economic performance increased, decreased, or remained the same compared to the previous month. Since these purchasing managers deal with market forces on a daily basis, they can provide a timely and accurate picture of current business trends.

Prices paid for major purchased items continued to rise sharply in April, and at a rate consistent with the previous two months, although somewhat under many of the months of 1979. Higher prices were reported by 75 percent of the purchasing managers; 24 percent said prices were unchanged; and only 1 percent paid lower prices in April compared to March. While there is some evidence on the national scene that sensitive raw material and food prices are not advancing at quite as heady a rate as during 1979, these effects have not yet been felt in the Arizona economy. It will likely be several more months before any real relief from the upward price pressures will be seen.

Delivery time on shipments from vendors continued to stretch out, but the April net increase was the lowest in over three years (since January, 1977) and substantially less than in January and February of this year. Longer delivery times were reported by 32 percent of the purchasing managers, while 15 percent got faster vendor deliveries. Although Arizona firms continue to experience delivery problems, the pressure on vendors to deliver has diminished and likely will continue to do so in the immediate future as greater slack develops in the business system.

Inventory levels of purchased materials went down in April, the first drop in about a year and a half (since July, 1978) as 20 percent of the firms added to inventory, and 31 percent cut stocks. On the positive side, the inventory increases over the past several years have been moderate, and well in line with, or under, the

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production increases. There is little chance of forced inventory reductions causing the recession to accelerate quickly and severely, as happened in 1974. Still, firms obviously are paring stocks, as the level of business activity declines and inventory carrying costs continue at excessive levels.

New orders received from customers saw a major decline — the largest net decrease in over five years (since December, 1974), and only the third decline in any month since July, 1975 (the drops in December, 1976 and January, 1980 were very small). Only 20 percent said their firm booked more business in April than in March, but a very large 46 percent saw their order books shrink. These slimmer order books will have a dampening effect on the Arizona economy and will result in reductions in both production and employment.

Production was down in April, in response to the bleak new-order picture. Seventeen percent of the firms raised output in April, but an almost-twice-as-large 33 percent found it necessary to cut back on production. This was the first decrease in this indicator since December, 1975, and the largest since February, 1975.

Employment of Arizona firms showed essentially no change, following 51 consecutive monthly increases. Higher employment was indicated by 20 percent, 19 percent pared payrolls. Firms are fairly slow to adjust employment in line with decreases in new orders and production, but as the economy drifts downward, employment decreases will occur in the months immediately ahead.

Thus, the long-awaited recession finally has arrived, and the declines in new order receipts and production were severe. With prices going up and business activity going down, it seems to be the worst of both worlds. However, a continuation of such business declines will begin to place downward pressure on prices, although it may not be experienced for some months to come, and the relatively favorable inventory picture should prevent the recession from becoming deep or lasting past the end of the year.

The results of the April purchasing survey are shown in Table I.

TABLE I
APRIL PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response April compared to March		
Key Indicator	*Higher*	*Same*	*Lower*
Prices paid for major commodities	75	24	1
Delivery time from vendors	32	55	13
Purchased materials inventory level	20	49	31
New orders received	20	34	46
Production	17	50	33
Employment	20	61	19

Source: Survey of the Purchasing Management Association of Arizona.

ARIZONA SALES OF ELECTRICAL POWER
By Months
(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1980	*1979*	*Same Month Previous Year*	*Previous Month*
March	2,203.6	2,045.0	7.19	8.49

Source: Based on reports from major suppliers.

Arizona Construction Activity: Quarterly Report

JAY Q. BUTLER

FIRST QUARTER 1980

Throughout the first quarter of 1980, mounting evidence showed that the economy was in the initial phase of a recession. While there is still disagreement concerning the length and depth of the recession, one thing is certain — homebuilding is in the midst of a severe downturn. Although the commercial and industrial sectors have not yet had a comparable downturn, activity in those sectors is expected to slow appreciably in the future as the effects of the recession become more apparent.

Total construction activity in Maricopa County for the first quarter of 1980 showed 12,407 permits issued; total dollar value was $347,707,107. This activity represented a 23 percent decline in number of issued permits (16,021 to 12,407 permits) from one year ago and a 15 percent decline in dollar value ($406,920,789 to $347,707,107). Construction activity for the rest of Arizona also registered a decline, although not as severe: Number of permits showed a 14 percent decrease (11,043 to 9,482 permits), while total dollar value decreased 13 percent ($224,525,937 to $196,155,448). Tables 1 and 2 show the trend of decreasing construction activity for the last five quarters.

TABLE 1

ARIZONA QUARTERLY HOUSING STARTS

	BUILDING PERMITS ISSUED				
	1 Family	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
1979					
FIRST QUARTER					
Maricopa County	7,228	17	58	186	10,650
Rest of State	4,481	49	27	16	5,100
Arizona Total	11,709	66	85	202	15,750
SECOND QUARTER					
Maricopa County	8,227	69	110	84	11,944
Rest of State	6,291	30	30	21	7,257
Arizona Total	14,518	99	140	105	19,201
THIRD QUARTER					
Maricopa County	5,019	40	48	177	9,389
Rest of State	5,541	46	34	39	7,621
Arizona Total	10,560	86	82	216	17,010
FOURTH QUARTER					
Maricopa County	3,654	48	54	71	6,256
Rest of State	4,220	39	26	32	5,566
Arizona Total	7,874	87	80	103	11,822
1980					
FIRST QUARTER					
Maricopa County	3,418	28	42	105	6,320
Rest of State	3,452	32	42	12	4,204
Arizona Total	6,870	60	84	117	10,524

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

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TABLE 2

ARIZONA QUARTERLY BUILDING PERMIT* ACTIVITY

		RESIDENTIAL		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
		Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
1979	FIRST QUARTER										
	Maricopa County	9,519	207,680,328	568	99,325,216	108	13,227,668	5,826	86,687,577	16,021	406,920,789
	Rest of State	8,350	126,721,479	313	33,557,067	32	40,806,011	2,348	23,441,380	11,043	224,525,937
	Arizona Total	17,869	334,401,807	881	132,882,283	140	54,033,679	8,174	110,128,957	27,064	631,446,726
	SECOND QUARTER										
	Maricopa County	10,593	245,886,557	563	107,706,741	114	31,598,095	7,239	58,649,086	18,509	443,840,479
	Rest of State	10,801	177,943,784	413	83,445,863	21	5,166,240	2,700	36,144,970	13,935	302,700,857
	Arizona Total	21,394	423,830,341	976	191,152,604	135	36,764,335	9,934	94,794,056	32,444	746,541,336
	THIRD QUARTER										
	Maricopa County	7,014	163,059,602	564	129,297,596	163	43,106,632	5,908	76,641,388	13,649	412,105,218
	Rest of State	9,030	154,644,619	363	70,701,363	27	3,651,771	2,945	28,231,341	12,365	257,209,094
	Arizona Total	16,044	317,704,221	927	199,998,959	190	46,758,403	8,853	104,872,729	26,014	669,314,312
	FOURTH QUARTER										
	Maricopa County	5,864	134,935,967	512	128,226,226	127	40,249,131	5,281	57,274,578	11,784	360,685,902
	Rest of State	7,408	118,051,966	411	73,966,907	9	658,963	2,109	20,254,659	9,937	212,932,495
	Arizona Total	13,272	252,987,933	923	202,193,133	136	40,908,094	7,390	77,529,236	21,721	573,618,397
1980	FIRST QUARTER										
	Maricopa County	6,173	120,797,718	510	123,606,604	149	42,596,153	5,575	60,706,632	12,407	347,707,107
	Rest of State	6,694	97,272,425	355	73,441,664	14	3,444,490	2,419	21,996,869	9,482	196,155,448
	Arizona Total	12,867	218,070,143	865	197,048,268	163	46,040,643	7,994	82,703,501	21,889	543,862,555

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

The main factor affecting the construction industry has been the unprecedented rise in interest rates. As an example, the average contract interest rate on a conventional mortgage for the purchase of a newly built, single-family home, with a 75 percent loan-to-value and a twenty-five year term, rose from 12.50 percent in January to 14.15 percent in March.

Although interest rates have begun to decline, the effect of the high rates will be felt throughout the real estate industry for the remainder of 1980 and into 1981.

Residential Sector

This sector has borne the main brunt of the slumping real estate market. For Maricopa County, 6,173 residential permits valued at $120,797,718 were issued during the first quarter of 1980, a 35 percent decline from the 9,519 permits of a year ago but a 5 percent increase from the 5,864 permits issued in the fourth quarter of 1979. The single-family sector demonstrated a 53 percent decrease from a year ago (7,228 to 3,418 permits) and a 6 percent decline from the ending quarter of 1979 (3,654 to 3,418 permits). Because remodeling and alteration activity normally increases during a recession, the decline in permit activity was not as severe as shown by recorded dollar value which decreased 42 percent ($207,680,328 to $120,797,718) from a year ago and 10 percent from the fourth quarter ($134,935,967 to $120,797,718).

The slowing residential construction activity, which was evident in Maricopa County throughout 1979, became more apparent for the rest of Arizona as well. The 6,694 permits issued in the first quarter represent a 20 percent decrease over a year ago (8,350 permits), and a 10 percent decline from the fourth quarter (7,408 permits). Single-family construction activity decreased 23 percent from a year ago (4,481 to 3,452 permits) while there was an 18 percent decline (4,220 to 3,452 permits) from the end of 1979. In Pima County, single-family construction activity registered a 37 percent decrease (2,089 to 1,301 permits) over a year ago and a 33 percent decrease (1,946 to 1,301 permits) over the fourth quarter of 1979. Because Maricopa County is considered to be a leading indicator of construction activity for Arizona, a further decline in residential activity can be expected for the remainder of 1980.

Commercial Sector

The construction of current commercial projects is based on funds committed at the end of 1979 when interest rates were lower, with the result that commercial activity has not shown the same pattern as the residential sector. The number of permits (510) is almost unchanged from the 512 permits of the fourth quarter and down only 10 percent from the 568 permits of a year ago. Smaller projects tend to be greatly affected by current economic conditions, while larger projects relying on larger pools of capital tend to be carried on during the initial phase of a recession. This condition is reflected in the recorded dollar value which declined only 3 percent from the fourth quarter ($128,226,226 to $123,606,604) but showed an increase of 25 percent ($99,325,216 to $123,606,604) over the first quarter of

1979. The primary areas of development have been in office buildings and apartments. As these projects are finished during the tightening economic condition, vacancy rates can be expected to increase.

The remainder of Arizona reflected a comparable pattern with 355 permits issued representing only a 14 percent decline from the fourth quarter (411 permits) but a 13 percent increase over the 313 permits issued during the first quarter of 1979. The $73,441,664 recorded dollar value is very similar to the $73,966,907 of the fourth quarter but is a 114 percent increase over the $33,557,067 of a year ago. For the first quarter of 1980, Pima County recorded 133 commercial permits valued at $59,003,913 compared to 230 permits valued at $53,702,567 in the fourth quarter and 100 permits worth $16,384,132 a year ago.

Industrial Sector

If there is a bright spot in this gloomy picture, it is the industrial sector. The dominant area of activity was Maricopa County where 149 permits valued at $42,596,153 were recorded. This represented a 22 percent increase in issued permits (108 permits) and a 222 percent in dollar value ($13,227,668) over a year ago. Within Maricopa County the primary areas of industrial development were Chandler (6 permits valued at $12,426,100), Phoenix (73 permits worth $18,222,272), and Tempe (58 permits valued at $9,482,115).

In the rest of the state, 14 permits worth $3,444,490 were issued (including a $2,000,000 industrial building in Yavapai County). This activity constitutes a 50 percent increase over the 9 permits issued in the fourth quarter and a 423 percent increase over the $658,963 recorded in the same quarter last year.

LOOKING AHEAD

There is still considerable disagreement concerning the depth and length of the recession. The optimists forecast a mild recession with recovery evident by the end of 1980, while the pessimists foresee a severe downturn lasting well into 1981.

While interest rates rose greatly during the first quarter, they began to decline in the month of May. The prime interest rate dropped from a record high of 20 percent to 14 percent and is expected to decrease further. The decline is attributed to decreased loan demand, easing of the Federal Reserve System's credit policy, and the reduced cost of funds for various financial institutions. As an example, the interest rate on the six-month treasury bills, which form the basis for the money market certificates, declined from 15.7 percent in March to 9.5 percent in May.

Mortgage interest rates have shown signs of decreasing from the record levels of 17 percent for conventional loans and 14 percent for FHA/VA mortgages. The FHA/VA rate was lowered to 13 percent and is expected to decline further to 11.5 percent. On May 8, the Home Savings and Loan Association of California, the largest in the nation, reduced its prime mortgage rate from 17.5 percent to 12.75 percent. In Arizona, several lenders have begun to offer mortgage rates from 14 to 14.5 percent. Because the decline in interest rates has just started, no consistent pattern is evident in available mortgage rates, which are a function of a financial institution's cash flow, liquidity, and its cost of funds. Some experts believe that these stated mortgage rates will stabilize and could even increase depending upon what happens to the short-term rates over the next few months. The consensus appears to be that conventional mortgage rates will range from 12 to 14 percent by the end of 1980 and could go down to 11 percent in 1981 before they again start to increase.

The decline in interest rates appears to be caused more by the coming recession than by government action. It must be recognized that the inflationary forces have yet to be brought under control. Until the level of inflation is brought down, interest rates are expected to remain relatively high and may fluctuate through the remainder of 1980.

Even though interest rates are declining, concerns about the coming recession will make consumers very cautious of large-scale purchases. Thus, homebuilding is expected to remain at low levels for the rest of 1980 with increasing activity beginning in 1981. Construction activity in the commercial and industrial sectors will slow down as the recession becomes stronger.

Given the growth potential of Arizona, however, there is no real reason for a gloomy long-term forecast. Nevertheless, uncertainties concerning economic conditions over the next several months suggest that the construction industry must approach any new development with a great deal of caution. Construction activity can be expected to decline further in response to the recession, but recovery should become evident by the end of 1980 and stronger during the early quarters of 1981.

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[1] *News*, Federal Home Loan Bank Board, April 7, 1980.

Arizona New Housing Starts: Quarterly Report

FIRST QUARTER, 1980

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	26	—	—	1	58
Eagar	3	—	—	1	35
St. Johns	10	—	—	—	10
Springerville	4	—	—	—	4
Uninc. Apache Co.	9	—	—	—	9
COCHISE COUNTY	202	—	—	—	202
Benson	8	—	—	—	8
Bisbee	1	—	—	—	1
Douglas	9	—	—	—	9
Huachuca City	2	—	—	—	2
Sierra Vista	86	—	—	—	86
Tombstone	2	—	—	—	2
Uninc. Cochise Co.	92	—	—	—	92
Willcox	2	—	—	—	2
COCONINO COUNTY	130	3	—	—	136
Flagstaff	33	2	—	—	37
Fredonia	4	—	—	—	4
Page	25	—	—	—	25
Uninc. Coconino Co.	68	1	—	—	70
Williams	—	—	—	—	—
GILA COUNTY	90	1	—	—	92
Globe	3	1	—	—	5
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	32	—	—	—	32
Uninc. Gila Co.	55	—	—	—	55
GRAHAM COUNTY	52	—	—	—	52
Pima	1	—	—	—	1
Safford	6	—	—	—	6
Thatcher	7	—	—	—	7
Uninc. Graham Co.	38	—	—	—	38
GREENLEE COUNTY	4	—	—	—	4
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	4	—	—	—	4
MARICOPA COUNTY	3,418	28	42	105	6,320
Avondale	11	—	—	—	11
Buckeye	5	—	—	—	5
Chandler	233	—	1	—	236
El Mirage	—	—	—	—	—
Gila Bend	2	—	—	—	2
Gilbert	10	—	—	—	10
Glendale	178	—	8	4	254
Goodyear	—	—	—	—	—
Guadalupe	3	—	—	—	3
Mesa	396	13	12	9	739
Paradise Valley	31	—	—	—	31
Peoria	28	—	—	—	28
Phoenix	1,179	6	2	44	3,036
Scottsdale	216	—	—	—	216
Surprise	3	—	—	—	3
Tempe	89	9	15	42	662
Tolleson	3	—	—	—	3
Uninc. Maricopa Co.	1,027	—	4	6	1,077
Wickenburg	4	—	—	—	4
Youngtown	—	—	—	—	—

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
MOHAVE COUNTY	587	2	3	—	601
Kingman City	34	—	—	—	34
Kingman Area	78	—	—	—	78
Lake Havasu City	175	2	—	—	177
Lake Havasu Area	31	—	—	—	31
Mohave Valley North	173	—	3	—	183
Mohave Valley South	58	—	—	—	58
Dolan Springs	14	—	—	—	14
Sacramento Valley	19	—	—	—	19
Mohave Co. General	7	—	—	—	7
NAVAJO COUNTY	75	—	—	—	75
Holbrook	7	—	—	—	7
Show Low	15	—	—	—	15
Snowflake	5	—	—	—	5
Taylor	2	—	—	—	2
Uninc. Navajo Co.	39	—	—	—	39
Winslow	7	—	—	—	7
PIMA COUNTY	1,301	21	18	11	1,916
Marana	1	—	—	—	1
Oro Valley	4	—	—	—	4
South Tucson	5	—	—	—	5
Tucson	228	21	18	7	519
Uninc. Pima Co.	1,063	—	—	4	1,387
PINAL COUNTY	197	1	4	—	211
Casa Grande	31	—	—	—	31
Coolidge	4	—	—	—	4
Eloy	1	—	—	—	1
Florence	8	—	—	—	8
Kearny	3	—	—	—	3
Mammoth	5	—	—	—	5
Superior	—	—	—	—	—
Uninc. Pinal Co.	145	1	4	—	159
SANTA CRUZ COUNTY	25	—	—	—	25
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	3	—	—	—	3
Uninc. Santa Cruz Co.	22	—	—	—	22
YAVAPAI COUNTY	374	2	10	—	412
Chino Valley	11	—	—	—	11
Clarkdale	5	—	—	—	5
Cottonwood	26	—	—	—	26
Jerome	N/R	N/R	N/R	N/R	N/R
Prescott	78	—	6	—	99
Uninc. Yavapai Co.	254	2	4	—	271
YUMA COUNTY	389	2	7	—	420
Parker	3	—	—	—	3
Somerton	4	—	—	—	4
Uninc. Yuma Co.	238	—	—	—	238
Wellton	—	—	—	—	—
Yuma	144	2	7	—	175
TOTAL, Maricopa Co., First Quarter 1980	3,418	28	42	105	6,320
TOTAL, Maricopa Co., First Quarter 1979	7,228	17	58	186	10,650
PERCENT CHANGE	-53	65	-28	-44	-41
TOTAL, Arizona, First Quarter 1980	6,870	60	84	117	10,524
TOTAL, Arizona, First Quarter, 1979	11,790	66	85	202	15,750
PERCENT CHANGE	-42	-9	-1	-42	-33

N/R: No report; data for this month will be combined with data reported for the following month.
*Includes mobile homes.

FIRST QUARTER, 1980

Arizona Building Permits: Quarterly Report

	RESIDENTIAL'		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
CENSUS DIVISION	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
APACHE COUNTY	30	295,363	5	980,000	—	—	4	10,500	39	1,285,863
Eagar	4	138,000	1	960,000	—	—	—	—	5	1,098,000
St. Johns	13	N/C	—	—	—	—	1	N/C	14	N/C
Springerville	4	N/C	3	N/C	—	—	—	—	7	N/C
Unincorporated Apache County	9	157,363	1	20,000	—	—	3	10,500	13	187,863
COCHISE COUNTY	416	6,421,304	13	658,600	—	—	266	993,611	695	8,073,515
Benson	19	186,057	—	—	—	—	17	26,782	36	212,839
Bisbee	50	142,085	1	22,000	—	—	20	24,975	71	189,060
Douglas	31	544,236	1	71,400	—	—	35	80,523	67	696,159
Huachuca City	15	81,219	—	—	—	—	—	—	15	81,219
Sierra Vista	152	2,827,250	4	382,000	—	—	135	319,255	291	3,528,505
Tombstone	17	57,250	—	—	—	—	5	6,780	22	64,030
Unincorporated Cochise County	118	2,507,655	6	180,200	—	—	51	519,446	175	3,207,301
Willcox	14	75,552	1	3,000	—	—	3	15,850	18	94,402
COCONINO COUNTY	207	5,217,739	27	922,961	1	100,000	83	112,866	318	6,353,566
Flagstaff	59	2,259,085	23	862,993	1	100,000	26	61,382	109	3,283,460
Fredonia	6	100,000	1	12,000	—	—	6	9,600	13	121,600
Page	39	272,811	1	1,000	—	—	19	11,800	59	285,611
Unincorporated Coconino County	99	2,562,140	2	46,968	—	—	22	26,142	123	2,635,250
Williams	4	23,703	—	—	—	—	10	3,942	14	27,645
GILA COUNTY	162	1,754,776	14	615,625	2	172,643	50	1,242,432	228	3,785,476
Globe	20	140,300	—	—	—	—	5	1,009,200	25	1,149,500
Hayden	6	4,250	—	—	—	—	—	—	6	4,250
Miami	6	117,910	—	—	—	—	2	2,700	8	120,610
Payson	54	315,517	5	379,147	1	135,643	36	24,712	96	855,019
Unincorporated Gila County	76	1,176,799	9	236,478	1	37,000	7	205,820	93	1,656,097
GRAHAM COUNTY	104	1,478,082	18	2,651,900	—	—	13	2,815,347	135	6,945,329
Pima	1	25,000	—	—	—	—	—	—	1	25,000
Safford	27	270,780	8	40,900	—	—	10	30,347	45	342,027
Thatcher	25	461,700	4	2,575,000	—	—	2	2,609,000	31	5,645,700
Unincorporated Graham County	51	720,602	6	36,000	—	—	1	176,000	58	932,602
GREENLEE COUNTY	5	143,795	—	—	—	—	—	—	5	143,795
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	1	2,200	—	—	—	—	—	—	1	2,200
Unincorporated Greenlee County	4	141,595	—	—	—	—	—	—	4	141,595
MARICOPA COUNTY	6,173	120,797,718	510	123,606,604	149	42,596,153	5,575	60,706,632	12,407	347,707,107
Avondale	15	109,895	5	357,432	—	—	31	254,312	51	721,639
Buckeye	12	156,894	1	18,000	—	—	16	560,725	29	735,619
Chandler	307	3,945,920	6	436,034	6	12,426,100	431	2,222,424	750	19,030,478
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	5	42,000	—	—	—	—	—	—	5	42,000
Gilbert	12	437,900	2	1,179,592	3	1,165,000	78	235,063	95	3,017,555
Glendale	309	6,759,515	57	3,393,200	1	18,000	557	1,980,875	924	12,151,590
Goodyear	—	—	—	—	—	—	40	45,140	40	45,140
Guadalupe	9	83,093	—	—	—	—	—	—	9	83,093
Mesa	705	8,324,239	73	15,350,415	6	667,677	759	5,788,790	1,543	30,131,121
Paradise Valley	90	4,057,370	1	99,500	—	—	82	691,522	173	4,848,392
Peoria	47	830,323	8	632,311	1	408,042	65	390,038	121	2,260,714
Phoenix	2,048	54,318,466	165	76,564,855	73	18,222,272	2,083	34,261,803	4,369	183,367,396
Scottsdale	363	10,918,782	23	6,266,241	1	206,947	795	4,676,263	1,182	22,068,233
Surprise	17	77,950	—	—	—	—	10	5,053	27	83,003
Tempe	389	3,462,100	101	10,849,600	58	9,482,115	161	5,108,100	709	28,901,915
Tolleson	25	69,273	—	—	—	—	3	3,900	28	73,173
Unincorporated Maricopa County	1,717	26,773,751	68	8,459,424	—	—	450	4,431,140	2,235	39,664,315
Wickenburg	30	359,511	—	—	—	—	1	1,500	31	361,011
Youngtown	73	70,736	—	—	—	—	13	49,984	86	120,720

Arizona Building Permits: Quarterly Report (Continued)

FIRST QUARTER, 1980	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
MOHAVE COUNTY	1,303	16,620,786	50	3,770,019	4	823,786	324	977,977	1,681	22,192,568
Kingman City	59	874,175	15	1,849,282	—	—	22	37,493	96	2,760,950
Kingman Area	182	1,514,940	2	15,870	1	33,852	55	77,304	240	1,641,966
Lake Havasu City	224	6,815,000	8	455,559	3	789,934	89	566,042	324	8,626,535
Lake Havasu Area	73	540,162	1	6,480	—	—	14	35,794	88	582,436
Mohave Valley North	504	4,421,901	15	1,028,968	—	—	73	193,786	592	5,644,655
Mohave Valley South	172	1,473,776	6	272,164	—	—	30	21,435	208	1,767,375
Dolan Springs	37	255,186	—	—	—	—	18	19,024	55	274,210
Sacramento Valley	38	455,948	—	—	—	—	20	24,374	58	480,322
Mohave County General	14	269,698	3	141,696	—	—	3	2,725	20	414,119
NAVAJO COUNTY	125	1,769,695	6	217,116	1	N/C	20	210,808	152	2,197,619
Holbrook	8	385,000	1	45,000	—	—	1	20	10	430,020
Show Low	22	154,810	1	2,116	—	—	5	145,720	28	302,646
Snowflake	7	N/C	1	N/C	—	—	—	—	8	N/C
Taylor	3	N/C	—	—	—	—	—	—	3	N/C
Unincorporated Navajo County	62	920,885	—	—	1	N/C	11	62,568	74	983,453
Winslow	23	309,000	3	170,000	—	—	3	2,500	29	481,500
PIMA COUNTY	2,753	34,436,937	133	59,003,913	2	230,000	1,214	10,857,686	4,102	104,528,536
Marana	1	N/C	—	—	—	—	—	—	1	N/C
Oro Valley	14	406,595	—	—	—	—	—	—	14	406,595
South Tucson	17	233,638	14	78,652	—	—	1	12,000	32	324,290
Tucson	662	8,109,606	74	20,414,961	2	230,000	854	7,611,041	1,592	36,365,608
Unincorporated Pima County	2,059	25,687,098	45	38,510,300	—	—	359	3,234,645	2,463	67,432,043
PINAL COUNTY	317	4,261,681	15	700,835	—	—	122	909,611	454	5,872,127
Casa Grande	62	1,429,118	3	28,000	—	—	26	311,080	91	1,768,198
Coolidge	36	54,665	—	—	—	—	10	28,173	46	82,838
Eloy	9	46,403	1	30,000	—	—	4	5,800	14	82,203
Florence	8	138,500	—	—	—	—	13	47,860	21	186,360
Kearny	8	45,850	1	348,135	—	—	3	25,500	12	419,485
Mammoth	5	N/C	—	—	—	—	—	—	5	N/C
Superior	7	3,000	1	900	—	—	—	—	8	3,900
Unincorporated Pinal County	182	2,544,145	9	293,800	—	—	66	491,198	257	3,329,143
SANTA CRUZ COUNTY	34	1,327,897	1	40,000	—	—	6	247,360	41	1,615,257
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	7	48,555	—	—	—	—	—	—	7	48,555
Unincorporated Santa Cruz County	27	1,279,342	1	40,000	—	—	6	247,360	34	1,566,702
YAVAPAI COUNTY	596	12,420,932	45	1,796,133	2	2,007,000	185	1,347,372	828	17,571,437
Chino Valley	15	256,300	1	14,500	—	—	9	17,230	25	288,030
Clarkdale	5	189,850	—	—	—	—	4	13,200	9	203,050
Cottonwood	52	583,980	7	381,850	—	—	16	313,108	75	1,278,938
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	155	2,252,303	19	637,561	—	—	112	847,604	286	3,737,468
Unincorporated Yavapai County	369	9,138,499	18	762,222	2	2,007,000	44	156,230	433	12,063,951
YUMA COUNTY	642	11,123,438	28	2,084,562	2	111,061	132	2,271,299	804	15,590,360
Parker	8	99,040	6	27,350	—	—	3	9,850	17	136,240
Somerton	7	149,587	—	—	—	—	9	13,887	16	163,474
Unincorporated Yuma County	404	6,168,450	10	614,715	2	111,061	53	1,053,316	469	7,947,542
Wellton	1	2,000	—	—	—	—	1	7,000	2	9,000
Yuma	222	4,704,361	12	1,442,497	—	—	66	1,187,246	300	7,334,104
TOTAL Maricopa County, First Quarter 1980	6,173	120,797,718	510	123,606,604	149	42,596,153	5,575	60,706,632	12,407	347,707,107
TOTAL Maricopa County First Quarter, 1979	9,519	207,680,328	568	99,325,216	108	13,227,668	5,826	86,687,577	16,021	406,920,789
PERCENT CHANGE	– 35	– 42	– 10	24	38	222	– 4	– 30	– 23	– 15
TOTAL Arizona, First Quarter 1980	12,867	218,070,143	865	197,048,268	163	46,040,643	7,994	82,703,501	21,889	543,862,555
TOTAL Arizona, First Quarter, 1979	17,869	334,401,807	881	132,882,283	140	54,033,679	8,174	110,128,957	27,064	631,446,726
PERCENT CHANGE	– 28	– 35	– 2	48	16	– 15	– 2	– 25	– 19	– 14

N/R: No report; data for this month will be combined with data reported for the following month.
*Includes mobile homes.

MARCH, 1980

Arizona Building Permits: Monthly Report

CENSUS DIVISION	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
APACHE COUNTY	16	221,463	2	960,000	—	—	3	10,500	21	1,191,963
Eagar	4	138,000	1	960,000	—	—	—	—	5	1,098,000
St. Johns	5	N/C	—	—	—	—	—	—	5	N/C
Springerville	2	N/C	1	N/C	—	—	—	—	3	N/C
Unincorporated Apache County	5	83,463	—	—	—	—	3	10,500	8	93,963
COCHISE COUNTY	160	2,080,668	4	203,400	—	—	111	320,185	275	2,604,253
Benson	5	42,207	—	—	—	—	4	6,825	9	49,032
Bisbee	15	14,410	1	22,000	—	—	7	12,050	23	48,460
Douglas	15	182,990	1	71,400	—	—	16	44,415	32	298,805
Huachuca City	5	66,752	—	—	—	—	—	—	5	66,752
Sierra Vista	54	773,379	1	41,000	—	—	61	148,782	116	963,161
Tombstone	16	57,250	—	—	—	—	—	—	16	57,250
Unincorporated Cochise County	46	938,030	1	69,000	—	—	21	92,613	68	1,099,643
Willcox	4	5,650	—	—	—	—	2	15,500	6	21,150
COCONINO COUNTY	77	1,679,382	11	254,368	1	100,000	33	45,466	122	2,079,216
Flagstaff	13	387,091	10	209,100	1	100,000	13	30,060	37	726,251
Fredonia	1	5,000	—	—	—	—	1	2,000	2	7,000
Page	15	118,701	—	—	—	—	13	1,400	28	120,101
Unincorporated Coconino County	46	1,157,622	1	45,268	—	—	3	11,106	50	1,213,996
Williams	2	10,968	—	—	—	—	3	900	5	11,868
GILA COUNTY	78	634,161	3	89,950	1	135,643	9	1,199,750	91	2,059,504
Globe	10	67,100	—	—	—	—	1	1,000,300	11	1,067,400
Hayden	6	4,250	—	—	—	—	—	—	6	4,250
Miami	2	6,910	—	—	—	—	1	700	3	7,610
Payson	33	195,106	2	75,850	1	135,643	2	—	38	406,599
Unincorporated Gila County	27	360,795	1	14,100	—	—	5	198,750	33	573,645
GRAHAM COUNTY	39	559,776	5	1,284,000	—	—	4	17,040	48	1,860,816
Pima	—	—	—	—	—	—	—	—	—	—
Safford	10	37,180	1	1,000	—	—	4	17,040	15	55,220
Thatcher	10	226,500	2	1,275,000	—	—	—	—	12	1,501,500
Unincorporated Graham County	19	296,096	2	8,000	—	—	—	—	21	304,096
GREENLEE COUNTY	3	41,795	—	—	—	—	—	—	3	41,795
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	1	2,200	—	—	—	—	—	—	1	2,200
Unincorporated Greenlee County	2	39,595	—	—	—	—	—	—	2	39,595
MARICOPA COUNTY	1,848	35,113,070	166	32,207,123	57	9,791,793	2,097	25,122,727	4,168	102,234,713
Avondale	7	45,150	2	184,232	—	—	12	157,300	21	386,682
Buckeye	9	65,894	1	18,000	—	—	2	475,000	12	558,894
Chandler	77	994,059	5	248,704	3	118,000	136	617,709	221	1,928,472
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	1	18,000	—	—	—	—	—	—	1	18,000
Gilbert	1	23,000	—	—	—	—	43	93,554	44	116,554
Glendale	65	1,206,720	37	2,206,600	1	18,000	229	866,505	332	4,297,825
Goodyear	—	—	—	—	—	—	22	19,991	22	19,991
Guadalupe	4	1,183	—	—	—	—	—	—	4	1,183
Mesa	133	2,041,546	41	5,575,262	1	100,000	333	1,457,820	508	9,174,628
Paradise Valley	21	914,370	—	—	—	—	30	197,224	51	1,111,594
Peoria	12	134,017	6	483,886	1	408,042	19	65,196	38	1,091,141
Phoenix	682	18,366,737	35	20,511,043	20	5,742,451	765	16,742,489	1,502	61,362,720
Scottsdale	119	3,740,980	8	1,365,579	—	—	294	1,301,373	421	6,407,932
Surprise	10	72,450	—	—	—	—	7	3,500	17	75,950
Tempe	91	638,100	11	812,600	31	3,405,300	60	1,338,200	193	6,194,200
Tolleson	14	44,549	—	—	—	—	2	2,500	16	47,049
Unincorporated Maricopa County	572	6,813,246	20	801,217	—	—	140	1,776,350	732	9,390,813
Wickenburg	4	31,400	—	—	—	—	1	1,500	5	32,900
Youngtown	26	11,669	—	—	—	—	2	6,516	28	18,185

Arizona Building Permits: Monthly Report (Continued)

MARCH, 1980

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value
MOHAVE COUNTY	491	5,772,617	18	1,245,155	—	—	120	330,821	629	7,348,593
Kingman City	24	328,002	3	241,384	—	—	5	5,199	32	574,585
Kingman Area	82	653,210	1	14,400	—	—	28	37,084	111	704,694
Lake Havasu City	73	2,247,578	4	304,707	—	—	36	237,085	113	2,789,370
Lake Havasu Area	18	138,116	—	—	—	—	5	8,696	23	146,812
Mohave Valley North	183	1,396,336	6	558,324	—	—	19	16,925	208	1,971,585
Mohave Valley South	72	582,123	2	48,004	—	—	12	9,243	86	639,370
Dolan Springs	15	94,590	—	—	—	—	5	7,340	20	101,930
Sacramento Valley	17	213,784	—	—	—	—	9	8,884	26	222,668
Mohave County General	7	118,878	2	78,336	—	—	1	365	10	197,579
NAVAJO COUNTY	62	847,859	3	55,000	—	—	9	183,336	74	1,086,195
Holbrook	4	195,000	1	45,000	—	—	1	20	6	240,020
Show Low	9	73,478	—	—	—	—	2	131,868	11	205,346
Snowflake	3	N/C	1	N/C	—	—	—	—	4	N/C
Taylor	3	N/C	—	—	—	—	—	—	3	N/C
Unincorporated Navajo County	35	469,381	—	—	—	—	4	50,948	39	520,329
Winslow	8	110,000	1	10,000	—	—	2	500	11	120,500
PIMA COUNTY	1,031	12,585,380	52	27,496,852	2	230,000	414	3,953,675	1,499	44,265,907
Marana	1	N/C	—	—	—	—	—	—	1	N/C
Oro Valley	10	224,520	—	—	—	—	—	—	10	224,520
South Tucson	7	71,480	9	60,952	—	—	—	—	16	132,432
Tucson	258	3,977,360	18	4,795,400	2	230,000	278	2,529,520	556	11,532,380
Unincorporated Pima County	755	8,311,920	25	22,640,500	—	—	136	1,424,155	916	32,376,575
PINAL COUNTY	114	1,859,728	4	220,500	—	—	60	258,351	178	2,338,579
Casa Grande	20	1,016,813	1	6,500	—	—	13	94,300	34	1,117,613
Coolidge	13	12,865	—	—	—	—	4	18,573	17	31,438
Eloy	3	38,500	—	—	—	—	4	5,800	7	44,300
Florence	3	62,000	—	—	—	—	4	2,380	5	64,380
Kearny	4	5,600	—	—	—	—	3	25,500	7	31,100
Mammoth	3	N/C	—	—	—	—	—	—	3	N/C
Superior	2	N/C	—	—	—	—	—	—	2	N/C
Unincorporated Pinal County	66	723,950	3	214,000	—	—	34	111,798	103	1,049,748
SANTA CRUZ COUNTY	18	715,800	—	—	—	—	—	—	18	715,800
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	4	36,000	—	—	—	—	—	—	4	36,000
Unincorporated Santa Cruz County	14	679,800	—	—	—	—	—	—	14	679,800
YAVAPAI COUNTY	229	4,522,458	12	219,480	1	2,000,000	76	493,488	318	7,235,426
Chino Valley	8	128,200	—	—	—	—	6	13,380	14	141,580
Clarkdale	—	—	—	—	—	—	3	13,000	3	13,000
Cottonwood	21	186,030	3	154,000	—	—	3	306,743	27	646,773
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	44	460,711	—	—	—	—	55	76,645	99	537,356
Unincorporated Yavapai County	156	3,747,517	9	65,480	1	2,000,000	9	83,720	175	5,896,717
YUMA COUNTY	214	3,895,596	13	1,483,925	—	—	48	1,104,672	275	6,484,193
Parker	4	9,200	1	16,000	—	—	1	4,000	6	29,200
Somerton	5	77,587	—	—	—	—	6	13,887	11	91,474
Unincorporated Yuma County	150	2,648,386	5	286,470	—	—	15	193,896	170	3,128,752
Wellton	1	2,000	—	—	—	—	1	7,000	2	9,000
Yuma	54	1,158,423	7	1,181,455	—	—	25	885,889	86	3,225,767
TOTAL Maricopa County, March 1980	1,848	35,113,070	166	32,207,123	57	9,791,793	2,097	25,122,727	4,168	102,234,713
TOTAL Maricopa County March 1979	3,775	85,879,716	186	29,928,892	32	4,395,563	2,350	40,393,579	6,343	160,597,750
PERCENT CHANGE	-51	-59	-11	8	78	123	-11	-38	-34	-36
TOTAL Arizona, March 1980	4,380	70,529,753	293	65,719,753	62	12,257,436	2,984	33,040,011	7,719	181,546,953
TOTAL Arizona, March 1979	7,210	137,145,993	307	40,164,034	43	6,432,280	3,378	49,274,284	10,938	233,016,591
PERCENT CHANGE	-39	-49	-5	64	44	91	-12	-33	-29	-22

N/C: Not collected.

*Includes mobile homes.

N/R: No report, data for this month will be combined with data reported for the following month.

Arizona New Housing Starts: Monthly Report

MARCH, 1980

BUILDING PERMITS ISSUED

CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	13	—	—	1	45
Eagar	3	—	—	1	35
St. Johns	3	—	—	—	—
Springerville	2	—	—	—	2
Uninc. Apache Co.	5	—	—	—	5
COCHISE COUNTY	68	—	—	—	68
Benson	1	—	—	—	1
Bisbee	—	—	—	—	—
Douglas	3	—	—	—	3
Huachuca City	2	—	—	—	2
Sierra Vista	25	—	—	—	25
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	36	—	—	—	36
Willcox	—	—	—	—	—
COCONINO COUNTY	45	—	—	—	45
Flagstaff	5	—	—	—	5
Fredonia	—	—	—	—	—
Page	8	—	—	—	8
Uninc. Coconino Co.	32	—	—	—	32
Williams	—	—	—	—	—
GILA COUNTY	38	—	—	—	38
Globe	2	—	—	—	2
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	17	—	—	—	17
Uninc. Gila Co.	19	—	—	—	19
GRAHAM COUNTY	19	—	—	—	19
Pima	—	—	—	—	—
Safford	—	—	—	—	—
Thatcher	4	—	—	—	4
Uninc. Graham Co.	15	—	—	—	15
GREENLEE COUNTY	2	—	—	—	2
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	2	—	—	—	2
MARICOPA COUNTY	1.004	7	13	11	1,276
Avondale	6	—	—	—	6
Buckeye	2	—	—	—	2
Chandler	52	—	1	—	55
El Mirage	—	—	—	—	—
Gila Bend	1	—	—	—	1
Gilbert	1	—	—	—	1
Glendale	28	—	8	1	76
Goodyear	—	—	—	—	—
Guadalupe	—	—	—	—	—
Mesa	98	5	2	3	144
Paradise Valley	8	—	—	—	8
Peoria	2	—	—	—	2
Phoenix	391	2	2	6	536
Scottsdale	72	—	—	—	72
Surprise	3	—	—	—	3
Tempe	13	—	—	1	43
Tolleson	1	—	—	—	1
Uninc. Maricopa Co.	325	—	—	—	325
Wickenburg	1	—	—	—	1
Youngtown	—	—	—	—	—
MOHAVE COUNTY	209	—	—	—	209
Kingman City	9	—	—	—	9
Kingman Area	34	—	—	—	34
Lake Havasu City	56	—	—	—	56
Lake Havasu Area	10	—	—	—	10
Mohave Valley North	59	—	—	—	59
Mohave Valley South	26	—	—	—	26
Dolan Springs	5	—	—	—	5
Sacramento Valley	7	—	—	—	7
Mohave Co. General	3	—	—	—	3
NAVAJO COUNTY	38	—	—	—	38
Holbrook	3	—	—	—	3
Show Low	8	—	—	—	8
Snowflake	2	—	—	—	2
Taylor	2	—	—	—	2
Uninc. Navajo Co.	20	—	—	—	20
Winslow	3	—	—	—	3
PIMA COUNTY	465	4	3	4	514
Marana	1	—	—	—	1
Oro Valley	3	—	—	—	3
South Tucson	2	—	—	—	2
Tucson	107	4	3	1	133
Uninc. Pima Co.	352	—	—	3	375
PINAL COUNTY	70	—	3	—	79
Casa Grande	14	—	—	—	14
Coolidge	1	—	—	—	1
Eloy	1	—	—	—	1
Florence	3	—	—	—	3
Kearny	—	—	—	—	—
Mammoth	3	—	—	—	3
Superior	—	—	—	—	—
Uninc. Pinal Co.	48	—	3	—	57
SANTA CRUZ COUNTY	14	—	—	—	14
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	2	—	—	—	2
Uninc. Santa Cruz Co.	12	—	—	—	12
YAVAPAI COUNTY	135	1	—	—	137
Chino Valley	6	—	—	—	6
Clarkdale	—	—	—	—	—
Cottonwood	8	—	—	—	8
Jerome	N/R	N/R	N/R	N/R	N/R
Prescott	16	—	—	—	16
Uninc. Yavapai Co.	105	1	—	—	107
YUMA COUNTY	145	1	3	—	158
Parker	—	—	—	—	—
Somerton	2	—	—	—	2
Uninc. Yuma Co.	106	—	—	—	106
Wellton	—	—	—	—	—
Yuma	37	1	3	—	50
TOTAL, Maricopa Co., March 1980	1.004	7	13	11	1.276
TOTAL, Maricopa Co., March 1979	2.973	6	38	33	3.868
PERCENT CHANGE	−66	17	−66	−67	−67
TOTAL, Arizona, March 1980	2.265	13	22	16	2.642
TOTAL, Arizona, March 1979	4.847	23	49	36	5.835
PERCENT CHANGE	−53	−43	−55	−56	−55

N/R: No report; data for this month will be combined with data reported for the following month.
*Includes mobile homes.

Maricopa County Monthly Retail Food Prices

APRIL, 1980

During April the Maricopa County Index of Food Consumed at Home increased 0.8 percent following an increase of 1.5 percent in March. The April index value of 235.6 indicates that county shoppers had to pay $23.56 for a similar basket of food that would have cost $10.00 in 1967. This food basket could have been purchased for $21.70 one year ago.

The increase in the April index value was due to a rise in the subgroup *Fruits and Vegetables* (4.4 percent), *Cereals and Bakery Products* (1.5 percent), *Dairy Products* (0.3 percent), and *Other Foods* (0.3 percent). Partially offsetting these gains was a decrease in *Meats, Poultry, Fish, and Eggs* (-0.7 percent).

The prices of most items rose in the *Fruits and Vegetables* category including steep increases in the prices of lettuce (25.2 percent), tomatoes (12.7 percent), and other fresh vegetables (12.7 percent). However, modest declines were posted for potatoes (-7.6 percent) and oranges (-2.7 percent).

Cereals and Bakery Products either remained relatively constant or climbed upward in price, led by gains in cereal (4.2 percent); flour and prepared flour mixes (3.7 percent); and fresh pies, tarts and turnovers, and frozen and refrigerated bakery products (3.6 percent).

With the exception of butter, which rose 1.7 percent, all items in the *Dairy Products* subgroup remained unchanged from March. A mixture of price changes occurred in the *Other Foods* category. An escalation in sugar and artificial sweeteners (8.7 percent), candy and chewing gum (4.1 percent), and margarine (2.9 percent) was somewhat counteracted by a drop in nuts, potato chips, and other snacks (-3.7 percent), cola drinks, excluding diet cola (-2.3 percent), and frozen prepared food (-2.1 percent).

A plunge in the prices of noncanned ham (-14.4 percent), plus modest decreases in chuck roast (-3.3 percent), eggs (-3.2 percent), and fresh whole chicken (-3.1 percent) contributed to the lower prices in the *Meats, Poultry, Fish, and Eggs* subgroup despite increases in lamb and organ meats (5.3 percent), bacon (3.9 percent), and frankfurters (1.3 percent).

A comparison of the January Food Consumed at Home Index for Maricopa County with index values for four related metropolitan areas reveals that the outlays required to purchase a food group in January, 1980 (obtainable for an outlay of $10.00 at 1967 average prices) were $23.17 in Mariciopa County; $24.03 in Los Angeles-Long Beach; $24.76 in San Francisco-Oakland; $24.07 in Chicago-Northwestern Indiana; and $24.06 in the United States (average).

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States, and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	Maricopa County Apr. '80[a]	Maricopa County Jan. '80[b]	United States Jan. '80	Los Angeles-Long Beach Jan. '80	San Francisco-Oakland Jan. '80	Chicago-Northwestern Indiana Jan. '80
Food Consumed at Home	235.6	231.7	240.6	240.3	247.6	240.7
Cereals and Bakery Products	227.7	217.1	234.2	240.2	239.2	243.9
Meats, Poultry, Fish, and Eggs	244.4	245.6	238.0	240.7	249.8	237.7
Dairy Products	207.0	204.1	218.4	210.6	210.0	211.8
Fruits and Vegetables	210.7	213.4	229.8	228.5	237.0	234.5
Other Foods Consumed at Home	262.8	252.1	283.5	278.1	300.8	286.0

* Computed from data contained in The Consumer Price Index. U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

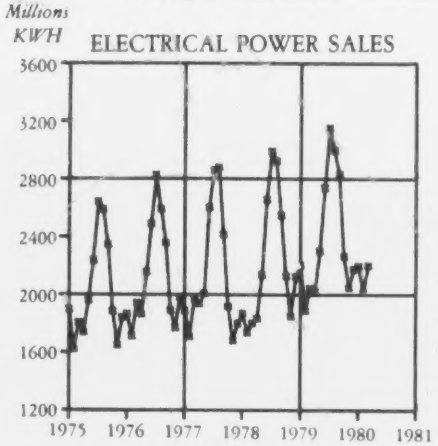
[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisions of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

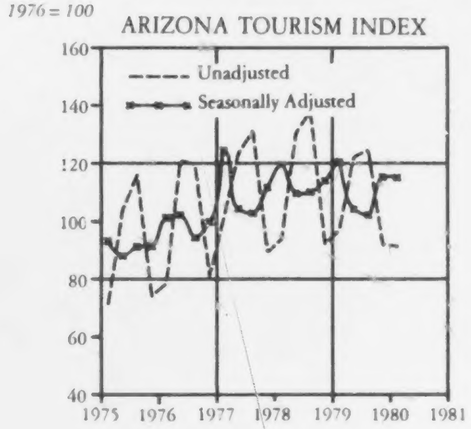
Note: Index Comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

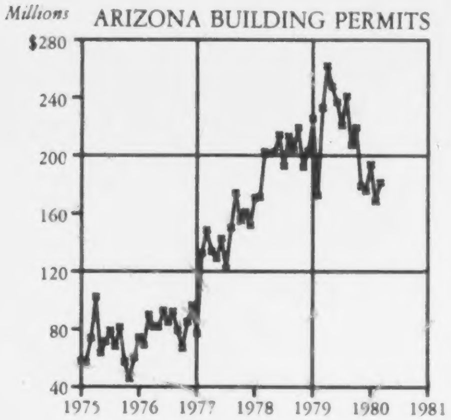
Arizona Economic Indicators



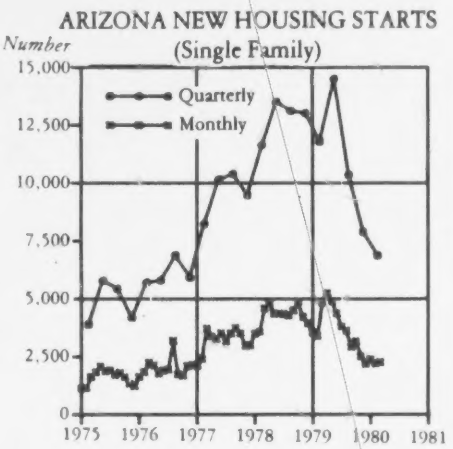
ELECTRICAL POWER SALES



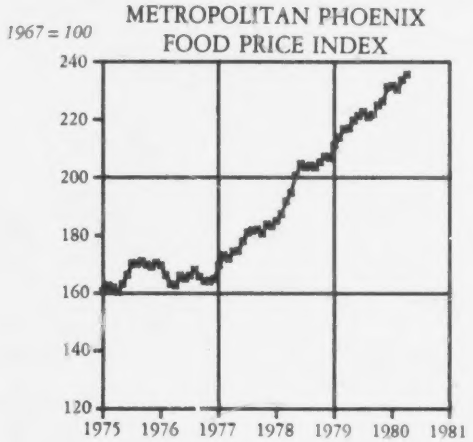
ARIZONA TOURISM INDEX



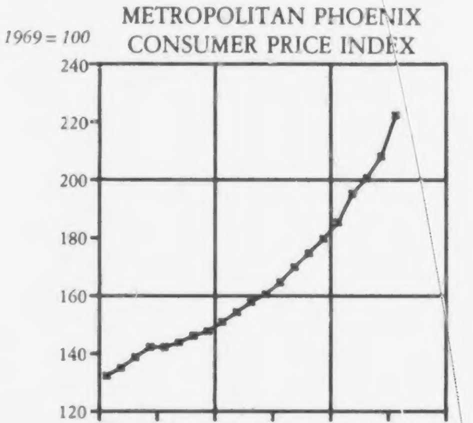
ARIZONA BUILDING PERMITS



ARIZONA NEW HOUSING STARTS (Single Family)

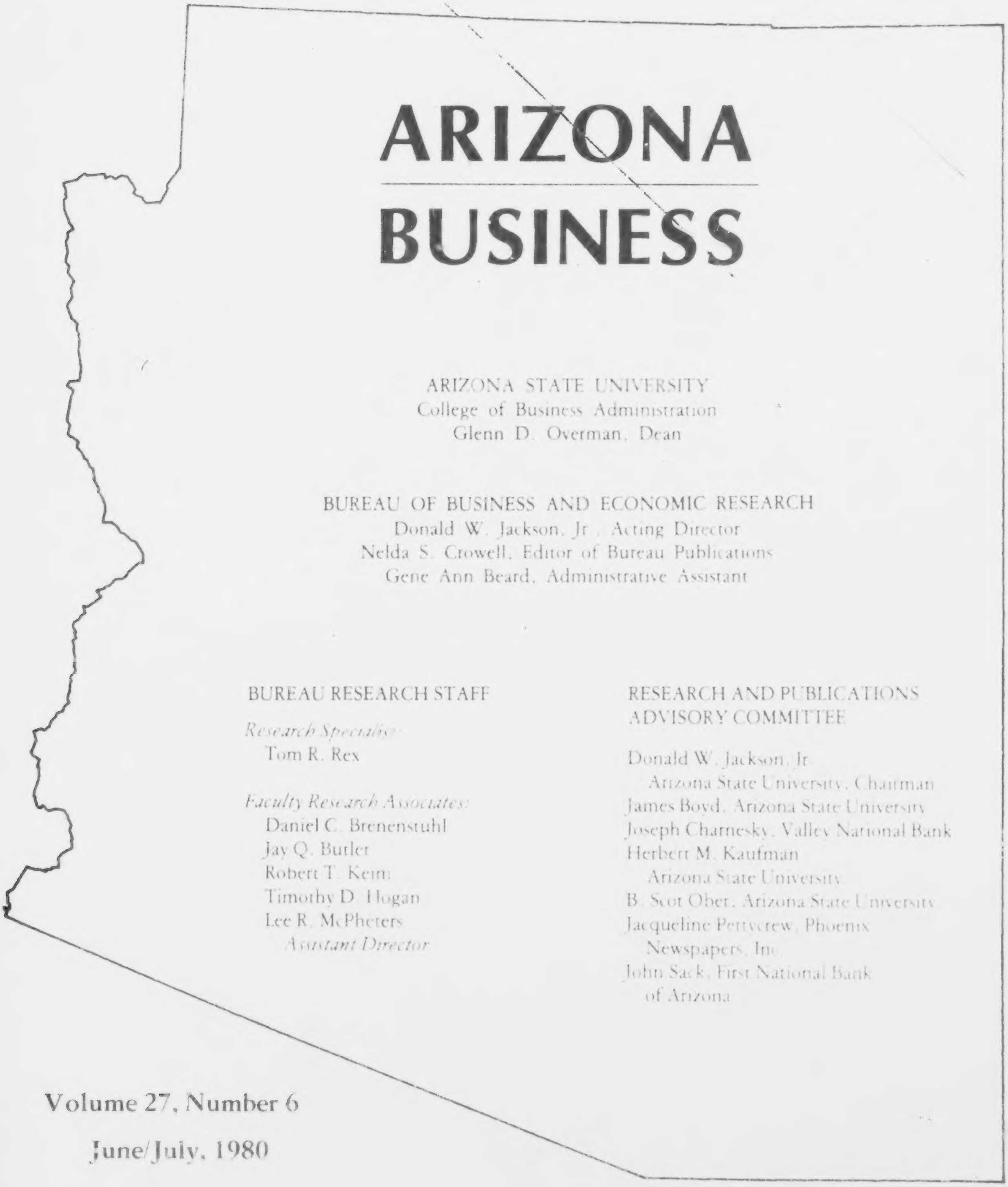


METROPOLITAN PHOENIX FOOD PRICE INDEX



METROPOLITAN PHOENIX CONSUMER PRICE INDEX

Source: All data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.



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In This Issue

Arizona: An Incubator Economy 3
Timothy S. Mescon
Sheila A. Adams

Phoenix Family Budget:
Increasing at a Double-Digit Rate 12
Robert T. Keim
Carol Zimmerman

Corporate Financial Policy
In an Inflationary Environment 18
Ronald J. Kudla

Doctoral Dissertation Abstracts 23
Arthur Neal Jensen
Charles Edward Weis

Arizona Business Scene —
Arizona's Savings and Loan Associations:
Facing New Challenges 25

Survey of Arizona Business Conditions 27
Harold Fearon

Arizona Sales of Electric Power 28

Arizona New Housing Starts:
Monthly Reports, April, May, 1980 29

Arizona Building Permits:
Monthly Reports: April, May, 1980 31

Maricopa County Monthly
Retail Food Prices: May, June, 1980 35

Metropolitan Phoenix
Consumer Price Index:
Second Quarter, 1980 37

Arizona Economic Indicators 40

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Report To The Reader

The Urban Family of Four Budget is an important indicator of changes in the cost of living. The article on page twelve of this issue of *Arizona Business* reports on this annual study done by the Bureau of Business and Economic Research in the College of Business Administration at Arizona State University in cosponsorship with the Valley National Bank. In 1979, the hypothetical family of four, as defined in the study, required $22,557 to maintain a moderate standard of living.

Several key points must be noted about the Urban Family of Four Budget (UFFB) however. First, the family is indeed hypothetical and may not necessarily represent the typical 1980 family. Nevertheless, in order to make valid year-to-year comparisons, it is necessary that the composition and working status of the family remain the same.

Furthermore, in order to maintain accurate comparisons, the budget cannot take into consideration changing consumption patterns and differences in life-styles. A family might be expected to substitute new products or lower priced items for the specified goods in the budget.

Another important point about the UFFB is that the way in which the prices of the various specified items are determined in Phoenix — checking prices directly in the market — is different from the way in which similar budgets are determined in other parts of the country. Therefore, accurate comparisons with other parts of the country are not possible.

Consistency, however, is the important characteristic of the UFFB. The goods priced are nearly identical each year, the composition of the hypothetical family has remained the same over the years; and the methodology for determining the Phoenix budget has remained the same. Therefore, in terms of changes in the cost of living, the UFFB serves a necessary role.

In an *Arizona Business* article (May, 1971), a detailed analysis of the UFFB was presented, and the authors pointed out the following ways the UFFB can be used:

—To provide a benchmark against which questions of income adequacy and family well-being can be considered.

—To form a basis for discussion in wage and salary negotiations and decisions.

—To supply data for use in consumer counseling, consumer legislation, and education.

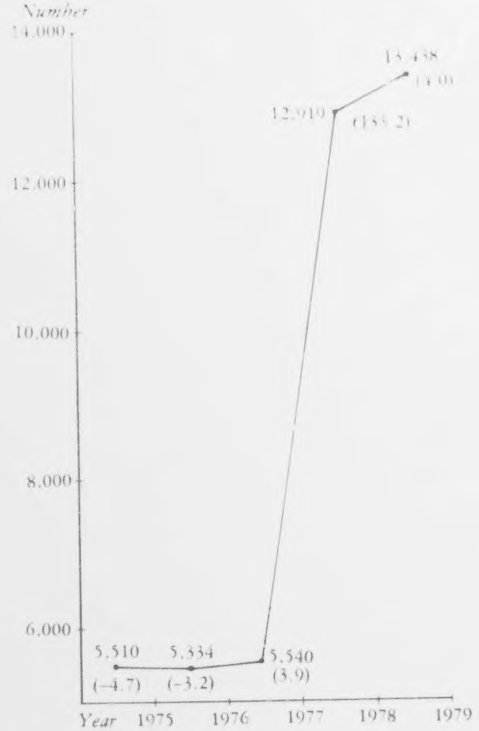
Arizona: An Incubator Economy

TIMOTHY S. MESCON
SHEILA A. ADAMS

"A corporation for every five Arizona families." With these words, the chairman of the Arizona Corporation Commission, attests to the growth and vitality of Arizona's business. After a steady growth rate of about 5,000 new incorporations annually for the past decade, the fiscal year 1977-1978 saw a virtual explosion in the number of new incorporations (Figure I). That year over 12,000 businesses received their articles of incorporation from the state. This activity was mirrored in 1978-1979 when over 13,000 new incorporations were registered with the State Corporation Commission.[1]

What accounts for Arizona's extraordinary business growth? No single explanation seems to exist. However, a number of factors taken together seem to have a synergistic effect on a state's economy. It is easy to understand that each of these factors contributes toward the creation of a healthy economy. The significance, however, lies in the fact that the combination of all of these ingredients has an ultimate effect greater than could be expected from merely summing the contributions of the individual components.

FIGURE I
NUMBER OF NEW
INCORPORATIONS IN ARIZONA
1975 - 1979
(Percent Change Over Previous Year)



Source: Arizona Corporation Commission

An incubator economy such as Arizona's results from the combined effect of several factors: favorable weather conditions, tourism, employment growth, population growth, favorable legal environment, education commitment, availability of public utilities, and transportation.

Timothy S. Mescon and Sheila A. Adams are faculty members in the Department of Management, College of Business Administration, Arizona State University.

This article examines these components individually and their combined impact, which has been described by one researcher as an "incubator effect." First, the process is described in general, followed by a model of key components of an incubator economy. Next this article examines in greater detail the effect of climate, legal environment, educational commitment, population growth, and employment on new business development. Thus, states such as Arizona, having an appropriate blend of these critical factors, may be said to enjoy an *incubator economy*. A comparison of Arizona with other Sun Belt states and with the United States provides some insight into the operations of the model.

THE INCUBATING PROCESS

In 1970, Professor Arnold Cooper directed a research project that analyzed the phenomenon of new venture development in Palo Alto, California. Cooper considered that Palo Alto served as an incubator for a variety of techonologically based industries. Supported by a strong educational foundation, the Palo Alto area fostered a number of creative, innovative, technologically based organizations. In turn, within a dynamic environment, these organizations generated a continual stream of business spin-offs. The opportunity to develop managerial skills and industry knowledge within the host organization provides the entrepreneurs with a solid foundation for establishing their own businesses. Cooper emphasizes that the incubation effect only exists within dynamic organizations operating in a growth industry. It is not found in static organizations within mature industries.

This analysis indicates that the incubation effect operates not only within the organizations but also within statewide and regional economies as well. Particularly in times of economic stress, the implications of this analysis may provide a feasible alternative to government subsistence programs. Any community, city, county, or state with an eye on establishing a solid corporate foundation for the 1980s should be cognizant of a number of factors that collectively serve to attract new industry from the outside as well as to generate new venture development from within.

For example, when a community is experiencing undesirable rates of unemployment, leaders may ask how they can attract new industry to the area to provide jobs. An examination of Figure II indicates the factors that contribute to the development of new business. If the community has favorable weather conditions it may decide to expend effort into attracting tourists, thus providing a market for the myriad businesses required to service the tourism industry.

Further analysis may indicate a need to upgrade transportation networks, expansion of airport facilities, possibly, to provide the access required for efficient movement into and out of the city. Attention may be needed in the area of public utilities, development of nuclear power generating facilities, perhaps, to service the needs of industry.

An area often overlooked is commitment to education. Such a commitment enhances the quality of the work force, a factor particularly important in the high technology industries. Since population growth offers opportunities for business growth, factors that tend to contribute to growth of population also contribute to business development as well.

The important point is that not just one or two components, but rather all components should be examined in order to benefit from the synergistic effects of the proposed model.

THE INCUBATOR ECONOMY: A MODEL

Eight factors have been identified as critically influencing new business development: weather conditions, legal environment, educational commitment, tourism, population growth, availability of public utilities, transportation networks, and employment growth. These factors operate within the prevailing political, social and economic environment. The interaction of these critical components and the nature of their influence on new venture creation is depicted in Figure II.

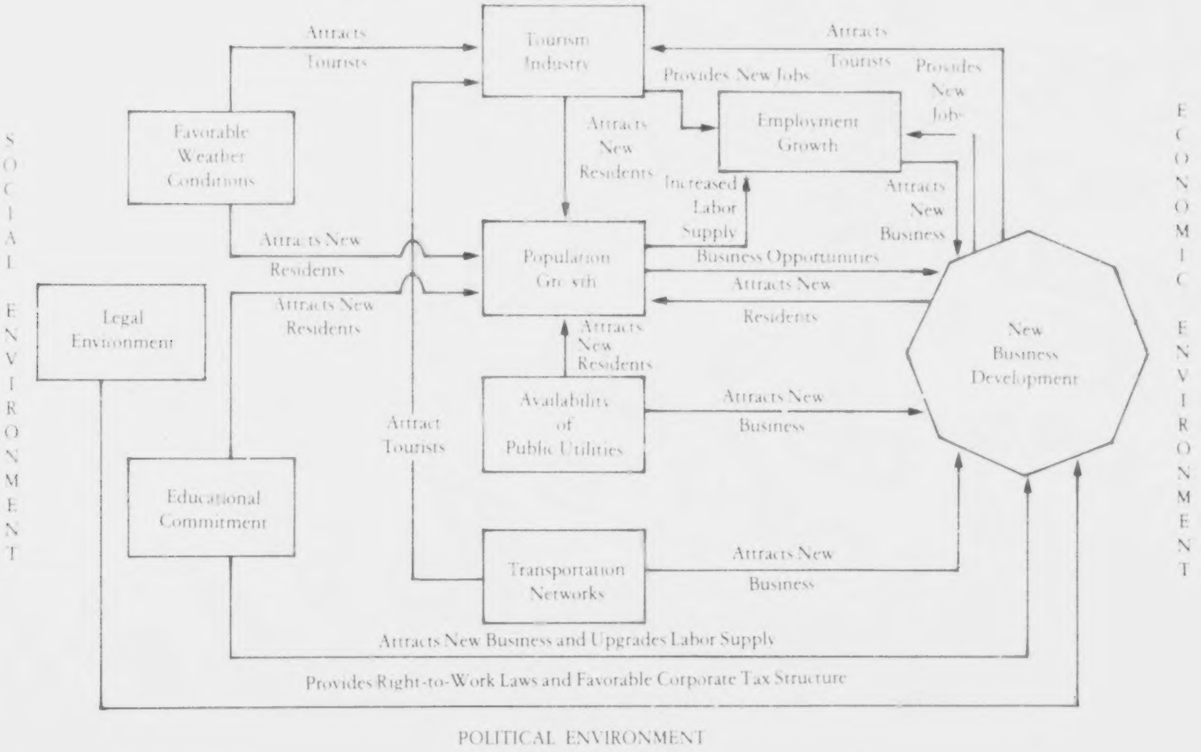
Key Components

As developed in the model shown in Figure II, the incubation effect emerges from the presence and interaction of a series of important components. While several of these factors are cultivated by various communities at various times, a successful commitment to business growth and development requires the simultaneous fostering of all of these components. The following discussion does not imply a specific order or priority for introducing key components into the model. Rather it is simply a brief description of the factors and their relationship.

Moving generally from left to right across the model permits an examination of the relationship in the incubation process. The first component, favorable weather conditions, performs the dual role of attracting

FIGURE II

KEY COMPONENTS OF AN INCUBATOR ECONOMY



SOCIAL ENVIRONMENT
Attracts Tourists
Tourism Industry
Attracts Tourists
Provides New Jobs
Provides New Jobs
Favorable Weather Conditions
Attracts New Residents
Employment Growth
Increased Labor Supply
Attracts New Business
ECONOMIC ENVIRONMENT
Attracts New Residents
Population Growth
Business Opportunities
Attracts New Residents
Legal Environment
Attracts New Residents
Attracts New Residents
New Business Development
Availability of Public Utilities
Attract Tourists
Attracts New Business
Educational Commitment
Transportation Networks
Attracts New Business
Attracts New Business and Upgrades Labor Supply
Provides Right-to-Work Laws and Favorable Corporate Tax Structure
POLITICAL ENVIRONMENT

Source: Developed by the authors.

tourists and attracting new residents, thus leading to population growth. Furthermore, businesses also respond to weather conditions. Representatives of companies locating in Phoenix, for example, cite the existence of "a seductive climate" as a major influence on their location decision.[5]

A geographic area with favorable prevailing weather conditions including mild winters, an abundance of sunshine, and natural terrain suitable for outdoor activities, tends to attract large numbers of tourists. Some states, such as Oregon, Washington, and Utah, encourage tourism yet remain vehemently opposed to permanent population growth. Other states, such as Mississippi, Georgia and Arizona, actively seek to sell their locations as desirable permanent residences. For these states, the favorable climate magnet may help trigger the incubator process.

Increasing the residential population does not, by itself, necessarily improve the prevailing business environment and lead to a healthy economy. While population growth contributes to an increased labor supply necessary for employment growth, it also interacts with other factors that, taken together, serve as catalysts for the incubation process. Population growth creates increased demand for products and services thereby providing a direct link to new business development.

New business development is also directly tied to the prevailing legal environment. New business, encouraged by an enticing corporate tax structure and the opportunity to avoid union conflict, tends to make favorable investment decisions.

A special research report sponsored by the Industrial Development Research Council (IDRC) reported results of a survey of large manufacturing firms to find out their opinions of the value to industry of business incentives offered by state and local governments. A state right-to-work law was ranked second in importance by the corporate real estate managers, exceeded only by tax exemption on land and capital improvements. The IDRC research report also provides a dramatic summary of the rapid increase in state offerings of varied industrial inducements in the years between 1965 and 1975. "The number of states offering city and county revenue bond financing, financing aid for existing plant expansion, tax exemptions or moratoria on land or capital improvements, and sales or use tax exemption on new equipment doubled during those years."[7]

Educational commitment has both a direct and indirect impact on new business development. A strong statewide commitment to quality education complements the incubation process by, (1) attracting new residents and (2) providing an upgraded labor supply.

The link between education and the vocational/technical capabilities of the labor supply is cited by the Fantus Company (a world leader in the complex field of industrial location studies) as a critical factor in business development decisions. As reported in Dun's *Review*, Fantus claims, "Labor quality and productivity factors are gaining in importance, since (labor) rates alone may not reflect true labor costs."[8] Additionally, Fantus emphasized that the availability of specific vocational/technical skills is an important problem rarely addressed in formal site location research.

Similar to educational commitment, availability of public utilities also serves a dual function. The availability and cost of power supplies is a secondary factor in attracting new residents and a primary factor in attracting new business development. In the Dun's *Review* article previously cited, Fantus addressed the issue of utility importance. "Electric power costs have always been a factor in the . . . location equation. Absolute costs are no longer the primary consideration . . . Other major concerns include reliability and *future capacity.*"[9] *(emphasis added)*

Transportation networks are vital for new business development. Accessibility to an area is an important consideration for venture development and/or expansion. "In site selection, some kind of study, whether it be a feasibility study or a market study or just a basic study of . . . access routes, is extremely important."[10] Ease of access is also a factor in attracting tourists, enhancing an industry which provides new jobs and may lead to population growth as tourists become permanent residents.

The incubation process is accelerated by new business development which in itself attracts additional tourists, some of whom become permanent residents, and provides new jobs, thus sustaining the cycle.

THE OPERATION OF THE MODEL

To illustrate the operation of an incubator economy, Arizona data are compared with data for ten Sun Belt states and with data for the forty-eight contiguous states. The ten Sun Belt states include Alabama, Arizona, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, South Carolina and Texas.

Population Growth

As indicated in Table 1, the average annual increase in population growth in the Sun Belt states (1.72 percent) more than doubles the national rate (0.8 percent) for the years 1970-1978. Arizona's rate (3.4 percent) for the same time period leads the Sun Belt states and is more than four times the national average.

TABLE 1

POPULATION IN SUN BELT STATES
AVERAGE ANNUAL PERCENTAGE INCREASE
1970-1978

State	*Percentage*
Alabama	1.0
ARIZONA	3.4
California	1.4
Florida	2.8
Georgia	1.2
Louisiana	1.0
Mississippi	1.0
New Mexico	2.1
South Carolina	1.5
Texas	1.8
Sun Belt Average	1.7
U.S. Average	0.8

Source: U.S. Bureau of the Census, *Current Population Reports*, series P-25.

Education Commitment

Direct per pupil expenditures for elementary and secondary education are shown in Table 2. Only one Sun Belt state, California, ranks in the top 20 percent of all states in terms of per pupil expenditures. The United States average per pupil expenditures for the year 1977-1978 was $1,744. The Sun Belt average was $1,501, and Arizona, which ranks slightly above the Sun Belt average but far below the national figure, allocated $1,585 per pupil in this period.

TABLE 2

PER PUPIL EXPENDITURES FOR ELEMENTARY AND SECONDARY EDUCATION

Dollars Spent and National Rank for Sun Belt States

State	*Expenditures*	*National Rank*	*Sun Belt Rank*
Alabama	$1,211	48	10
ARIZONA	1,585	30	4
California	2,003	7	1
Florida	1,744	24	2
Georgia	1,231	47	9
Louisiana	1,426	37	6
Mississippi	1,287	45	8
New Mexico	1,620	27	3
South Carolina	1,326	42	7
Texas	1,581	31	5
Sun Belt Average	1,501	—	—
U.S. Average	1,744	—	—

Source: Finance of Public School Systems in 1977-1978, U.S. Department of Commerce, Bureau of the Census.

Employment Growth

Since 1975 the average annual increase in U.S. employment has been 4.1 percent (Table 3). Employment in the Sun Belt has been increasing at a more rapid 5.4 percent annual average. The average rate of employment growth in Arizona (8.1 percent) during this time period surpasses all other Sun Belt states and almost doubles the national growth rate. Employment in only *one* Sun Belt state, Georgia (3.9 percent), has been increasing at a rate below the national annual average.

Legal Environment

Right-to-Work Laws. The National Labor Relations Act (Taft-Hartley) was originally designed to maintain and to promote full production in the United States. The act, passed in 1947, was developed to assist employees, employers, and unions to avoid irreconcilable disputes that could best be negotiated through specific laws. Additionally, the law was developed to provide for an orderly systematic method for resolving labor differences between the various parties involved.

Section 14(b) of the act states that nothing in the act shall be construed as authorizing membership in a labor organization as a condition of employment in any state or territory in which such execution is prohibited by state law.

Since 1947, twenty states have passed the so-called right-to-work laws. None of the traditionally industrial states used for comparison in this article currently has a right-to-work law. Indeed, of these states only Indiana has ever had a right-to-work law but that statute was repealed in 1965.[11] Within the Sun Belt, eight of the ten states have passed such legislation. Additionally a

TABLE 3

EMPLOYEES ON PAYROLLS OF NONAGRICULTURAL ESTABLISHMENTS

Sun Belt States — 1975-1979

(Thousands)

	1975	*1976*	*Percentage Change*	*1977*	*Percentage Change*	*1978*	*Percentage Change*	*1979*	*Percentage Change*	*Average Percentage Change 1975-79*
Alabama	1,155	1,207	+4.5	1,260	+4.4	1,361	+ 8.0	1,367	+0.4	+4.3
ARIZONA	729	759	+4.1	797	+5.0	934	+17.2	992	+6.2	+8.1
California	7,829	8,155	+4.1	8,522	+4.5	9,536	+11.9	9,892	+3.7	+6.1
Florida	2,746	2,784	+1.4	2,873	+3.2	3,259	+13.4	3,399	+4.3	+5.6
Georgia	1,756	1,836	+4.6	1,890	+2.9	2,027	+ 7.3	2,040	+0.6	+3.9
Louisiana	1,250	1,314	+5.0	1,335	+1.6	1,443	+ 8.1	1,472	+2.0	+4.2
Mississippi	692	738	+5.2	761	+4.5	836	+ 9.9	838	+0.2	+4.9
New Mexico	370	390	+5.4	415	+6.4	457	+10.1	477	+4.4	+6.0
South Carolina	983	1,038	+5.6	1,079	+3.9	1,153	+ 6.9	1,177	+2.1	+4.6
Texas	4,463	4,684	+4.9	4,872	+4.0	5,408	+11.0	5,639	+4.3	+6.1
Sun Belt Average										+5.4
United States Average										+4.1

Source: U.S. Department of Labor, Employment and Training Report of the President, 1979, and *Monthly Labor Review*, March, 1980.

ninth state. New Mexico annually introduces and defeats a right-to-work law.

The Sun Belt states with right-to-work laws are Alabama, Arizona, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas.

State Taxes. State taxes, the other aspect of legal environment, are often considered to be an integral factor in business location decisions, but a review of state corporate income tax rates does not support this premise. There seems to be more similarity than difference between the tax incentives offered by various states. For example, only eleven states do not exempt goods in transit from inventory tax (Freeport states) and only thirteen do not have some exemption for manufacturers' inventories. Six states do not exempt raw materials used in manufacturing. (Arizona is not among these exceptions.) However, of the six states that allow a complete deduction of federal income tax from state corporate income tax, three — Alabama, Arizona and Louisiana — are in the Sun Belt. Indeed, it appears that state tax incentives serve as a balancing factor to offset unfavorable location factors.

Weather Conditions

The ten states included in the area referred to in this article as the Sun Belt are spread out along the western, southern and southeastern borders of the United States. In these latitudes an abundance of sunshine and mild winters attract both tourists and permanent residents. Table 4 illustrates the contrast between the warmest and coldest areas of the country. Within the contiguous forty-eight states the warmest areas are all located in the Sun Belt. As can be seen from Table 4, three stations report so few days with the lowest temperature at or below freezing that the annual average is less than one. On the other hand, Table 4 shows the ten reporting stations with the greatest frequency of freeze occurrence. These range from 188 days a year in Duluth, Minnesota and Omaha, Nebraska to 166 days in Denver, Colorado. Table 4 also reports the freeze occurrence for ten major industrial cities. Philadelphia, the coldest of these cities, experiences an average of 164 days a year with minimum temperatures at or below freezing. New York City, on the other hand, has an average of only 82 days with such low temperatures. Finally, Table 4 includes a representative city for each of the ten Sun Belt states. Albuquerque, New Mexico (elevation 5,311 feet above sea level) has the highest average number of days (120) at or below freezing.

TABLE 4

AVERAGE NUMBER OF DAYS PER YEAR WITH LOW TEMPERATURE OF 32°F OR LESS

Reporting U.S. Weather Stations

Stations With Least Number of Days	*Days*
Los Angeles	0
San Francisco	0
Miami	0
Jacksonville (Fla.)	11
New Orleans	12
PHOENIX	15
Sacramento	20
Mobile	20
Houston	22
Seattle	32
Stations With Most Number of Days	
Duluth	188
Omaha	188
Salt Lake City	187
Bismarck	186
Sault St. Marie (Mich.)	179
Concord (N.H.)	174
Cheyenne	173
Sioux Falls	172
Burlington (Vt.)	168
Denver	166
Selected Industrial Cities	
New York	82
Pittsburgh	126
Chicago	120
Philadelphia	164
Detroit	125
Indianapolis	122
Boston	103
Cleveland	99
Milwaukee	149
St. Louis	108

Representative Cities for Sun Belt States

Alabama	Mobile	20
ARIZONA	Phoenix	15
California	Los Angeles	0
Florida	Miami	0
Georgia	Atlanta	60
Louisiana	New Orleans	12
Mississippi	Jackson	50
New Mexico	Albuquerque	120
South Carolina	Columbus	65
Texas	Houston	22

Source: Statistical Abstract of the United States: 100 Year Edition, U.S. Department of Commerce (p. 215).

New Incorporations

During the years 1975-1979 the national average annual increase in numbers of new incorporations was 12.6 percent (Figure III). During this same period new incorporations in the Sun Belt states were increasing at an average annual rate of 18.6 percent. In contrast, as mentioned earlier, Arizona has experienced exceptional rates of new incorporations. For the period 1975-1979 the average annual increase of new incorporations in Arizona was 34.5 percent. This rate is double the Sun Belt's average and nearly triple the national rate of growth.

Other Components

Tourism, transportation, and the availability of public utilities are additional contributors to the model. For healthy business development to occur, there must be an adequate and reliable supply of public utilities (power generation) for the production of goods and services. Furthermore, the expeditious movement of those goods and services requires accessible and efficient transportation networks (land, air and sea).

Tourism directly contributes to new business development. Tourism and travel expenditures in Arizona exceeded $4 billion in 1979.[12] There are also indirect effects. For example, tourism directly provides over 73,000 jobs and indirectly contributed to the creation of another 122,000 jobs within Arizona last year.[13] Tourism also contributes to population growth as tourists are enticed to become permanent residents thus contributing a further indirect impact on new business development.

SUMMARY

This paper argues that a number of factors synergistically influence new busienss development. Based upon a model of the incubator process (Figure II) specific components that contribute to business development have been examined. National, Sun Belt and Arizona data have been compared. Specifically, this article has reported on data for population growth, educational commitment, employment growth, weather conditions, legal environment, and finally, new incorporations. In most of these areas, data for the Sun Belt states corroborate the relationships developed in the model.

Some components, however, that have not been developed as fully in these states as in other U.S. areas, may, in the longer run, have a deleterious effect upon Sun Belt economies. For example, the educational commitment as represented by per pupil expenditures (Table 2) is substantially lower in the Sun Belt than the national average. Indeed, only California's per pupil expenditures ($2,003) exceeds the national figure ($1,744). Additionally, Georgia, Mississippi, Alabama and South Carolina all rank in the bottom ten of the fifty states in per pupil expenditures. Although Arizona ranks fourth among the Sun Belt states, it still allocates 10 percent less per pupil for primary and secondary education than the national average.

It is recognized that a portion of the population growth can be attributed to the influx of retirees. Despite this factor, it is readily apparent that the deficit that exists in educational expenditures will have a ripple effect on other components of the model. For example, the absence of a strong commitment to excellence in education will have a detrimental effect on the knowledge level of the labor supply. This is particularly critical in high technology industries.

IMPLICATIONS

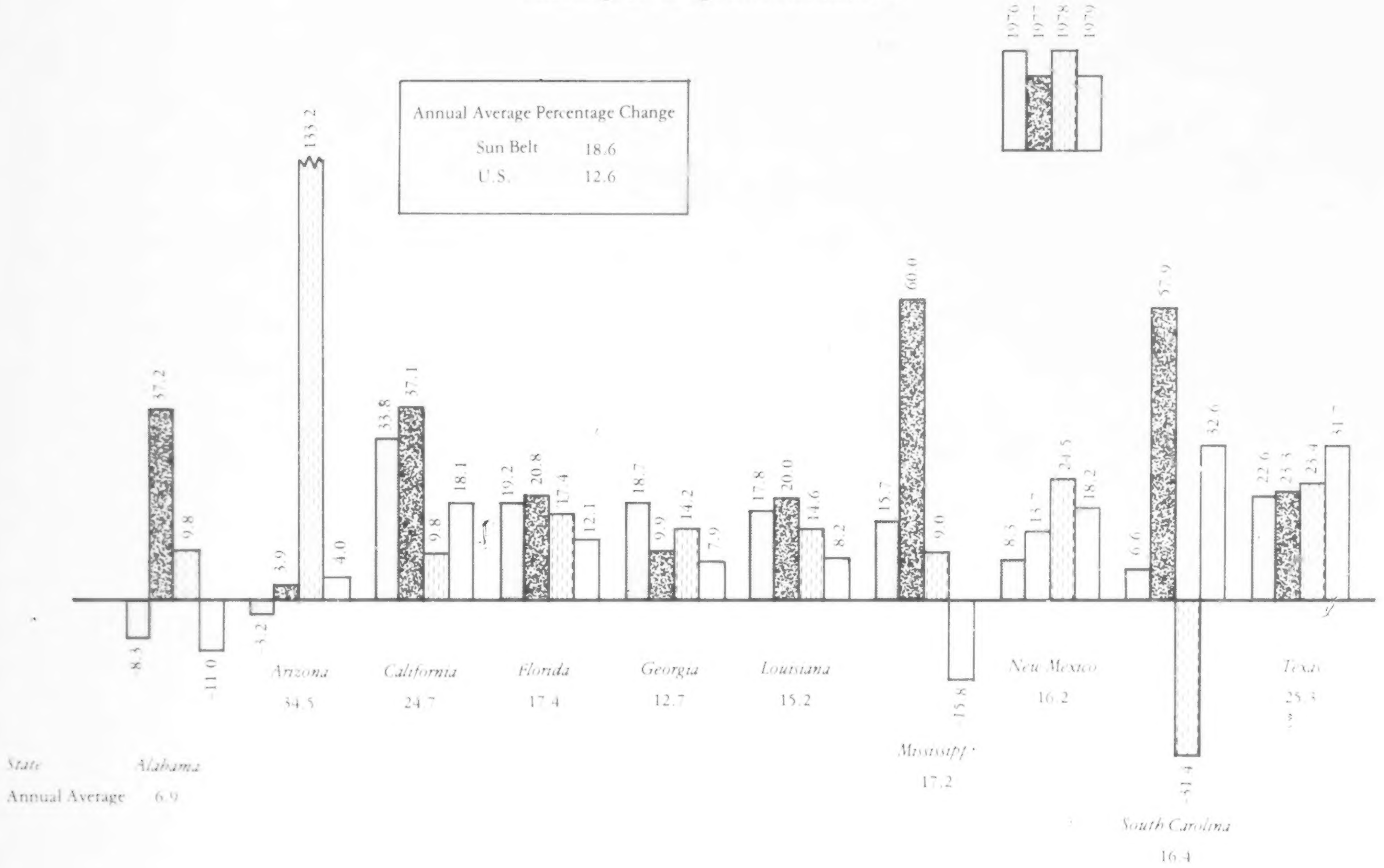
The state of Arizona exemplifies the operation of the incubator economy. The initial question posed in this article asked for an explanation of Arizona's extraordinary business growth. A series of factors has been identified that collectively contribute to developing new businesses. Indeed, in terms of population and employment growth, not only does Arizona lead the Sun Belt but it also ranks far above national averages. In terms of weather conditions only a handful of Sun Belt cities enjoy fewer days of freeze occurrence than Phoenix. It must be noted, however, that Phoenicians must endure excessive heat for a number of months.

Arizona's relatively poor showing in educational commitment, as expressed in per pupil expenditures, compared to the national average represents an area deserving of additional attention.

Arizona is one of twenty states (eight are in the Sun Belt) that prohibit the union shop. As a right-to-work state, Arizona recognizes the employee right to bargain collectively, but also places a premium upon individual freedom, choice and discretion. Right-to-work states hold great appeal for companies expecting to expand existing operations while reducing the probability of unionization. In recent years labor experts have seen an exodus from the union-intensive Northeast and Midwest of manufacturers who are seeking a more compatible management environment.

FIGURE III

NEW INCORPORATIONS
IN SUN BELT STATES — 1976-1979
Percentage of Change Over Previous Year



Source: News, Dun & Bradstreet, Inc., Business Economics Division, March 25, 1980, April 1, 1978, February 25, 1977.

Arizona is one of three Sun Belt states and among only six in the United States that allow all federal corporate income taxes to be deducted from state corporate income tax.

The recent new terminal opening at Sky Harbor airport represents an important development for Phoenix and Arizona. In the past six months a half dozen airlines have introduced new or expanded service to the state. Plans are already underway for the development of a fourth terminal to meet present and anticipated demand.

Air travel has a direct bearing on tourism and tourism expenditures within the state. Expenditures by airline tourists account for more than half of the $4 billion tourism industry. This further shows the relationship between tourism and business development.

Finally, the development of the Palo Verde nuclear facility represents a belief on the part of the area's leaders that conventional power generating facilities cannot adequately service the needs of these developing economies.

The characteristics of the Sun Belt states in general and Arizona in particular tend to substantiate the basic premise of the incubator process. The interactions of the key components of the model contribute to enhancing the environment for new business development.

This article extends Cooper's notion of the incubator organization to a regional as well as a statewide analysis of the incubator effect. The operation of the model of an incubator economy may be seen as a gauntlet thrown before local business development authorities. To meet the challenge of the eighties, local communities must recognize the collective contributions of the key components of the model to initiating and fueling the incubator process.

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[1] Arizona Corporation Commission, *Annual Report*, 1974, 1975, 1976, 1977, 1978, 1979. According to the Arizona Corporation Commission, a change in the incorporating law, which became effective July 1, 1976, had little or no impact on the rate of incorporations. The revisions in the law basically reduced the number of public announcements required of a planned incorporation from six to three and altered some of the filing fees. The total cost of incorporating was not altered significantly.

[2] Arnold Cooper, *The Founding of Technologically Based Firms* (Milwaukee, Wisconsin: The Center for Venture Management, 1971).

[3] "Technical Entrepreneurship: What Do We Know?" *R & D Management* (February, 1973).

[4] The authors have gathered ten years of data on approximately thirty variables describing the business climate in each of the forty-eight contiguous states. Various statistical techniques will be used in an attempt to determine the relative impact of any or all of these variables on the incubation process.

[5] Dan McGowan, "Phoenix Lures Firms with Climate, Labor," *The Arizona Republic*, (June 29, 1980), p. C-1.

[6] "Industrial Incentives from the Facility Planner's Viewpoint," *Industrial Development*, May/June, 1977), p. 32.

[7] Ibid.

[8] "What Management Needs to Know Before Picking a Plant Site," *Dun's Review* (October, 1979) p. 15.

[9] Ibid.

[10] James F. Scott, "The Importance of Feasibility Studies in Site Selection and Disposition of Industrial Properites," *Journal of Property Management* (January/February, 1980) p. 39.

[11] Hagburg, Eugene C. and Marvin J. Levine, *Labor Relations* (St. Paul Minnesota: West Publishing Company, 1978) p. 201-202.

[12] "Arizona Tourism: A $4 Billion Year in 1979," *Arizona Business*, (March 1980), pp. 25-26.

[13] Ibid.

Phoenix Family Budget: Increasing at Double-Digit Rate

ROBERT T. KEIM
CAROL ZIMMERMAN

A hypothetical Phoenix area family of four required $22,557 to maintain a moderate standard of living in 1979. This budget reflects an increase of 13.6 percent over the 1978 figure for the Phoenix area. These figures are the result of a study conducted by the Bureau of Business and Economic Research, College of Business Administration, at Arizona State University.[1] The budget, which is based upon consumption patterns determined by the United States Bureau of Labor Statistics, is directly priced during the fourth quarter each year.

The Phoenix Family of Four Budget Study is based on the methodology used by the Bureau of Labor Statistics and described in Bulletins 1570-1 and 1570-3 (Autumn, 1966). The contents of the budget, the item specifications, and allowed quantities of each item were set by the BLS in consumer expenditure surveys that determined which goods and services families were actually purchasing at the time of their survey, which was 1963. It provided for a lifestyle described as moderate, including the maintenance of health and social well-being, the nurture of children, and participation in community activities. However, since the BLS has not changed specifications, the items still reflect consumption patterns of the early 1960s.

The family is described as consisting of a 38-year-old husband employed full time, a wife who does not work outside the home, a son age 13, and a daughter age 8. The family is assumed to be well-established in the community. The couple has been married about fifteen years, and the husband is an experienced worker who is established in his field. The family has accumulated an average inventory of clothing, home furnishings, major durables, and other equipment. Three-fourths of such families are assumed to be homeowners with mortgages they contracted seven years ago. The remaining one-fourth are renters.

This family was defined by the Bureau of Labor Statistics as representative of the "typical" United States family in urban centers, but it is based on surveys done in the early 1960s. The composition of the hypothetical family used for these studies has not been changed from the original assumptions.

The budget itself, then, proceeds from the specific assumptions made about this *hypothetical* family of four and is most valid for tracing the living costs of that precisely defined family reflecting assumptions about the manner of living at the intermediate level. It must be emphasized that the budget does not report the

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Personal care, medical care, taxes and transportation accounted for the largest percentage increases in the Urban Family of Four Budget. Because of the methodology used and the need for consistency, accurate comparisons with other cities are not possible.

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average annual expenditures of households, but rather the level and nature of changes in living costs for a hypothetical family of four.

Because the items priced and the composition of the hypothetical family have not been changed for over a decade, the study may not accurately reflect current lifestyles. Families would normally alter their consumption patterns somewhat, substituting lower priced items as the prices of goods and services in the specified market basket rise. Such substitutions are not considered in this budget.

This budget study does have considerable consistency, however, since in the Phoenix metropolitan area, nearly identical goods have been priced each year. Changes in the year-to-year costs are almost entirely due to changes in *prices* of the goods and services included rather than to alterations in the budget compositions.

Phoenix is not one of the cities on which the BLS keeps Family of Four or Consumer Price Index data. To fill the void, the budget study has been done by the Bureau of Business and Economic Research since 1969. These data are collected by direct pricing of over 400 consumer goods and services. On the other hand, BLS studies for other cities merely update their 1969 direct prices by components of the Consumer Price Index. Because of this difference in methodology, these figures *cannot* be accurately compared to those issued by the BLS for other cities.

FAMILY OF FOUR BUDGET COSTS

The hypothetical Phoenix family of four required $22,557 in 1979 to maintain a moderate standard of living. This represents a 13.6 percent increase over last year, with the largest increases occurring in personal care (20.6 percent), medical care (20.2 percent), taxes (20.1 percent), and transportation (18.8 percent). Table 1 details a comparison of the Phoenix area budgets for 1978 and 1979.

Percentage increases in all categories ranged from over 7 percent to more than 20 percent. Food expenditures for the year increased $432, an increase of 8.9 percent over 1978, showing one of the lowest percentage gains but one of the highest dollar gains. A similar situation occurred in housing costs, which jumped $506 for a 10.7 percent increase. Personal care rose $95, showing the highest percentage gain, 20.6 percent. Medical care also reported a high percentage gain of 20.2 percent, rising $210 over the year. Transportation recorded a high gain in both percentage and dollars — an 18.8 percent increase, up $353 over 1978. Clothing costs went up from $1,290 to $1,465 showing a 13.6 percent increase. Other Family Consumption was $59 more than the previous year for a 7.3 percent increase.

Taxes for the urban family totaled $4,814 in 1979, up from $4,007 in 1978, for a jump of 20.1 percent. A significant portion of this increase was due to social security taxes. The rate went from 6.05 percent to 6.13 percent and the social security wage base rose to $22,900. This means that the hypothetical Phoenix family of four paid social security tax on every dollar they made this year; in past years, the base has often been below the total budget figures. Social security tax paid was up 29.1 percent from the maximum $1,071 in 1978 to $1,383 in 1979. In addition, the family paid $496 in personal income tax in 1979 for an increase of 16.9 percent. Other Costs, which are life insurance premiums, occupational expenses, and gifts and contributions, grew by 7.7 percent from $766 in 1978 to $825 in 1979.

Figures I through VIII display the eleven-year trend for the Phoenix area budget categories. The increases in each category are demonstrated by the steeper slopes of these lines in the past few years.

TABLE 1

PHOENIX FAMILY OF FOUR BUDGET COSTS PERCENTAGE CHANGES, 1978-1979

	1979 (Preliminary)	*1978[a] (Revised)*	*Percent Changes*
Total Budget	$22,557	$19,858	13.6
Total Family Consumption	16,918	15,085	12.2
Food	5,274	4,842	8.9
Housing	5,228	4,722	10.7
Transportation	2,233	1,880	18.8
Clothing	1,465	1,290	13.6
Personal Care	556	461	20.6
Medical Care	1,249	1,039	20.2
Other Family Consumption	913	851	7.3
Other Costs[b]	825	766	7.7
Taxes	4,814	4,007	20.1
Social Security	1,383	1,071	29.1
Personal Income	3,432	2,936	16.9

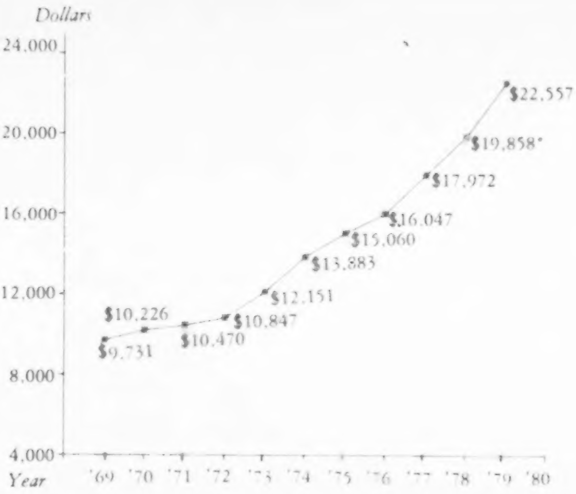
[a] 1978 figures have been adjusted to reflect changes in the methodology used to calculate personal income taxes at the state and federal levels.

[b] Other costs include life insurance premiums, occupational expenses, gifts and contributions.

Note: Details may not add to totals due to rounding.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University in cosponsorship with Valley National Bank

FIGURE I
TOTAL BUDGET
(Metropolitan Phoenix)



*1978 figures have been adjusted to reflect changes in the methodology used to calculate personal income taxes at the state and federal levels.

FIGURE II
FOOD
(Metropolitan Phoenix)

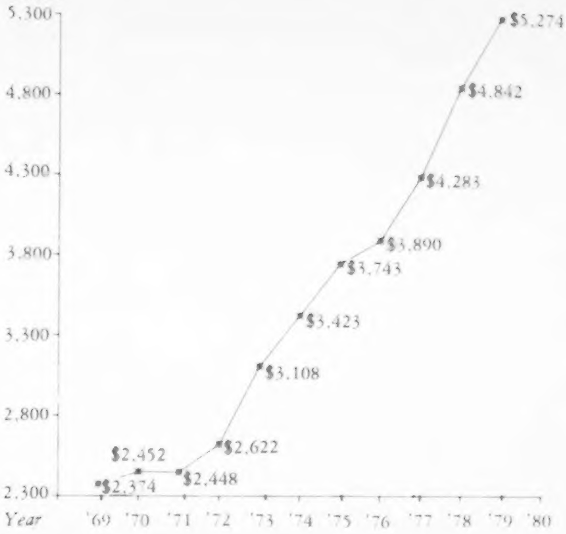


FIGURE III
HOUSING
(Metropolitan Phoenix)

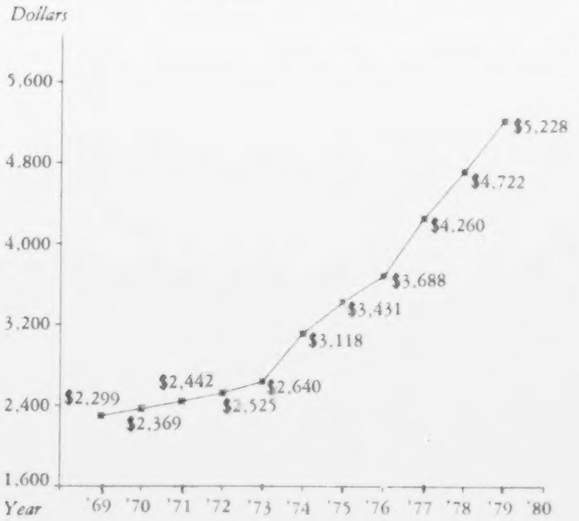
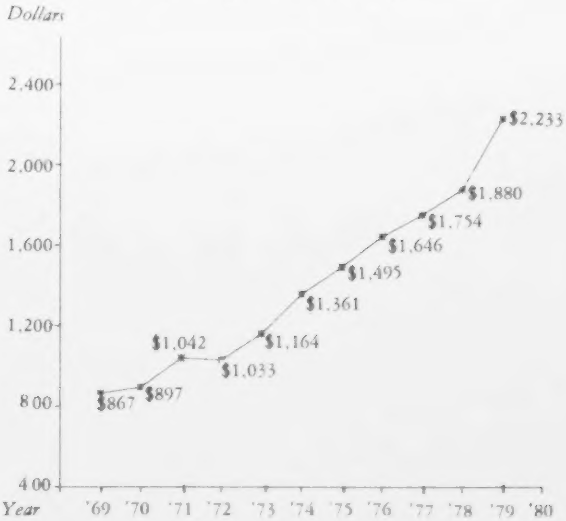


FIGURE IV
TRANSPORTATION
(Metropolitan Phoenix)



Source: U.S. Urban Average, Bureau of Labor Statistics; Phoenix data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank of Arizona.

FIGURE V
CLOTHING AND PERSONAL CARE
(Metropolitan Phoenix)

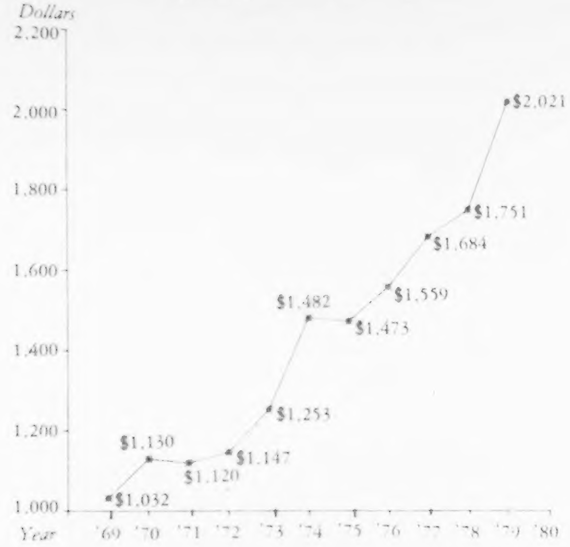


FIGURE VI
MEDICAL CARE
(Metropolitan Phoenix)

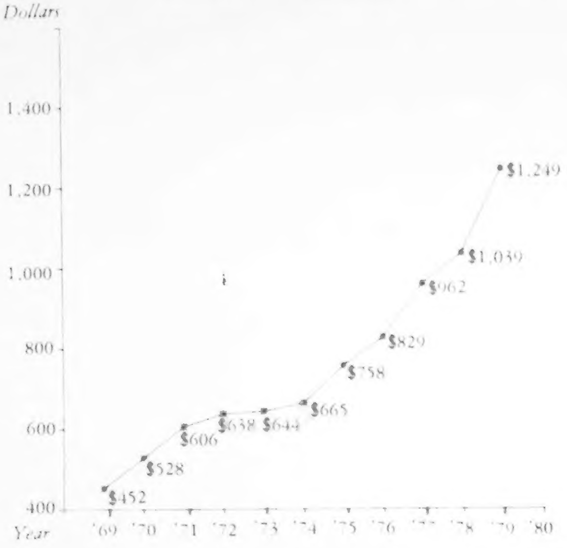


FIGURE VII
OTHER FAMILY CONSUMPTION
Alcoholic Beverages, Tobacco Products,
Reading & Recreation
(Metropolitan Phoenix)

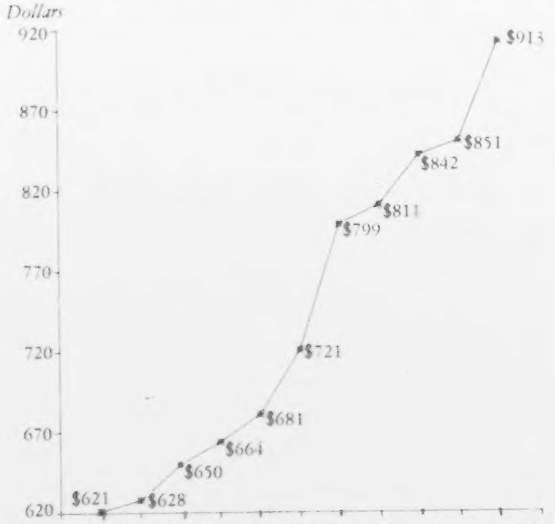
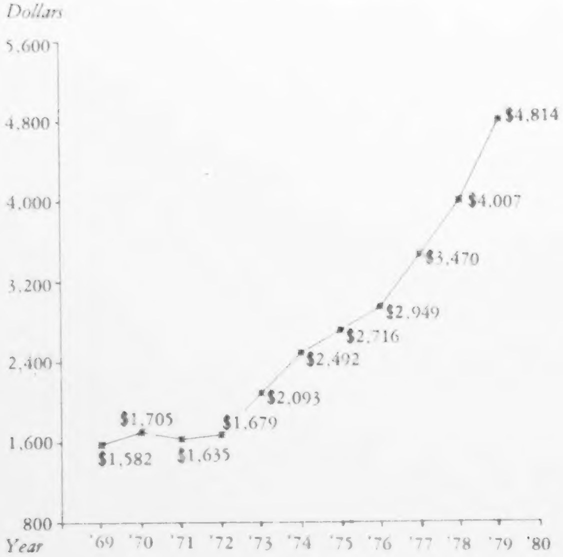


FIGURE VIII
TAXES
(Metropolitan Phoenix)



*1978 figures have been adjusted to reflect changes in the methology used to calculate personal income taxes at the state and federal levels.

Source: U.S. Urban Average, Bureau of Labor Statistics; Phoenix data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cosponsorship with Valley National Bank of Arizona.

DISTRIBUTION OF EXPENDITURES

Table 2 details the comparison of the 1978 and 1979 distribution of budget expenditures. The most significant change in the allocation of the budget is the increasing percentage of the total budget that is allocated to taxes. In particular, with the rate and maximum tax base for social security increasing, the urban family of four allocated 6.1 percent to social security in 1979 as compared to 5.4 percent of the 1978 budget. The 1979 budget is depicted in Figure IX.

TABLE 2

PHOENIX FAMILY OF FOUR BUDGET COSTS
PERCENTAGES OF TOTAL BUDGET,
AUTUMN, 1978, AND AUTUMN, 1979

	1978 (Percent of Total Budget)	*1979 (Percent of Total Budget)*
Total Budget	100.0	100.0
Total Family Consumption	76.0	75.0
Food	24.4	23.4
Housing	23.8	23.2
Transportation	9.5	9.9
Clothing	6.5	6.5
Personal Care	2.3	2.5
Medical Care	5.2	5.5
Other Family Consumption[a]	4.3	4.0
Other Costs[b]	3.9	3.7
Taxes	20.2	21.3
Social Security	5.4	6.1
Personal Income	14.8	15.2

[a] *Other Family Consumption* includes reading materials and recreation, tobacco and alcohol, and miscellaneous items.

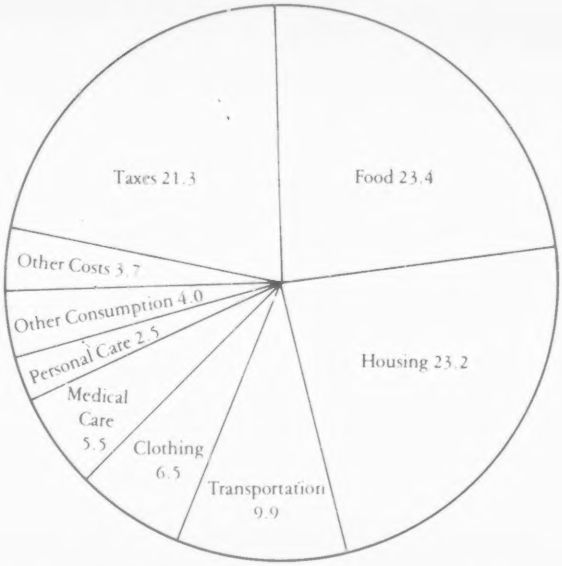
[b] *Other Costs* include life insurance premiums, occupational expenses, gifts and contributions.

Note: Details may not add to totals due to rounding.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University in cosponsorship with Valley National Bank.

FIGURE IX

PHOENIX FAMILY OF FOUR BUDGET COSTS
PERCENTAGE DISTRIBUTION OF EXPENDITURES
(Autumn, 1979)



Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University in cosponsorship with Valley National Bank.

Family consumption took three-fourths of the total family budget. Food comprised 23.4 percent and housing comprised 23.2 percent of that budget. Thus, those two categories consumed nearly half of the urban Phoenix family's expenditures.

Nearly one-fourth of the total family budget was spent in four other categories: transportation (9.9 percent); clothing (6.5 percent); personal care (2.5 percent); and medical care (5.5 percent). Other family consumption, including reading materials and recreation, tobacco and alcohol, and miscellaneous items, took 4.0 percent of the budget.

Other costs not included in the consumption category took 3.7 percent of the budget and included life insurance premiums, occupational expenses, and gifts and contributions.

The remaining portion of the family's budget (21.3 percent) went for taxes, including social security tax and personal income tax.

COMPARISON WITH TUCSON

Phoenix and Tucson are the two major metropolitan areas in Arizona and account for over 75 percent of the state's population. The Tucson area family of four data collected by the University of Arizona's Division of Economic and Business Research[1] are directly comparable to the Phoenix data since both studies follow essentially the same methodology in collecting the budget data.

Table 3 provides a comparison of the major categories of the UFFB (Urban Family of Four Budget) for Phoenix and Tucson. In most categories, Phoenix is slightly higher with an overall budget about 5.3 percent higher than Tucson.

SUMMARY AND FORECAST

The increase in the cost of living for the Phoenix metropolitan area jumped into the double-digit range after an increase in 1978 of 9.8 percent.[2] The increase is slightly lower than the increase in the Consumer Price Index during this same time period (15.3 percent).[3] This difference can be partially explained by the seven-year-old mortgage used in developing the family of four budget figures. Thus the effect of the changes in the CPI are delayed with respect to the family of four budget figures.

The areas of greatest increase, and thus of greatest concern are personal care, medical care, taxes, and transportation. Based upon the ever increasing CPI figures, the Phoenix area family of four should be in for another year of double-digit increases in the cost of living in 1980.

TABLE 3

COMPARISON OF FAMILY BUDGETS:
PHOENIX AND TUCSON
1979
(Urban Family of Four)

	Phoenix	*Tucson*
Total Budget	$22,557	$21,426
Total Family Consumption	16,918	16,251
Food	5,274	4,901
Housing	5,228	5,218
Transportation	2,233	2,075
Clothing & Personal Care	2,021	1,989
Medical Care	1,249	1,087
Other Family Consumption	913	981
Other Costs	825	802
Taxes	4,814	4,373
Social Security	1,383	1,313
Personal Income	3,432	3,060

Source: Phoenix data compiled by the Bureau of Business and Economic Research at Arizona State University in cosponsorship with Valley National Bank. Tucson data compiled by the University of Arizona's Division of Economic and Business Research in cosponsorship with Valley National Bank.

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[1] This research is cosponsored by the Valley National Bank.

[2] "Phoenix Family Budget: Above the U.S. Average Again," *Arizona Business*, June-July, 1979.

[3] "Metropolitan Phoenix Consumer Price Index, Fourth Quarter, 1979," *Arizona Business*, February, 1980.

Corporate Financial Policy In an Inflationary Environment

RONALD J. KUDLA

Business people today are faced with myriad problems including energy crises, liquidity crunches, raw material shortages, increased competition, rapid technological change, growing governmental regulation, and inflation. This article addresses one of these problems — inflation.

In the 1950s and 1960s, inflation averaged about 2 percent per year and could be largely ignored by business people. However, during the 1970s, inflation averaged 7 to 8 percent per year. Moreover, at times it has fluctuated widely to the double-digit level. In 1979, inflation was in excess of 13 percent, and 1980 promises more of the same. This substantial level of inflation has had a pervasive influence on all segments of our society including corporations, governments, and individuals. This article focuses on the impact of inflation on corporations and some ways of dealing with the problem.

The first section of the paper reviews the nature and scope of inflation. The second section explores the consequences of inflation for corporations. Strategies for combating inflation are examined in the third section. The final section summarizes the principal findings and conclusions.

THE NATURE AND MAGNITUDE OF INFLATION

Inflation is defined as a substantial and sustained increase in the general level of prices for goods and services. Some economists attribute inflation to an excess demand for goods and services leading to market pressures that increase prices. Others point to a cost-push effect wherein rising wages and other costs lead to increased prices. Actions of the Organization of Petroleum Exporting Countries (OPEC) have further aggravated the situation. Another source of inflation frequently cited in the media is an excessive increase in the money supply in relation to output. The most well-known proponent of this viewpoint is Dr. Milton Friedman of the University of Chicago. Whatever the reasons, it seems likely that inflation will be with us for quite some time.

One widely publicized measure of inflation is the Consumer Price Index (CPI), published monthly by the U.S. Bureau of Labor Statistics.[1] A Consumer Price Index for the Phoenix metropolitan area is produced by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University in cosponsorship with the Valley National Bank. The CPI is based on a budget that reflects the spending habits of

Inflation is an important factor that must be considered by corporations in their day-to-day activities and in long-term planning. This article deals with specific strategies in the areas of investment, financing and operations that a corporation can use to offset some of the effects of inflation.

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a cross-section of families of varying size, income, and other characteristics. Table 1 summarizes changes in the CPI and the purchasing power of the dollar over the period 1967-1979.[2] During these years, the general price level rose more than twofold, and as a result, a dollar in 1979 was worth only 46 cents in terms of its 1967 purchasing power.

TABLE 1

U.S. CONSUMER PRICE INDEX
Annual Averages
(1967 = 100)

Year	*Consumer Price Index*	*Purchasing Power of One Dollar*
1967	100.0	1.00
1968	104.2	.91
1969	109.8	.96
1970	116.3	.86
1971	121.3	.82
1972	125.3	.80
1973	133.1	.75
1974	147.1	.68
1975	161.2	.62
1976	170.5	.59
1977	181.5	.55
1978	195.4	.52
1979	217.4	.46

Source: Economic Report of the President, Washington, D.C., 1979.

CONSEQUENCES OF INFLATION

Inflation has several negative consequences for corporations including distorted profits, lack of incentives for capital investment due to increased borrowing costs, and a higher degree of risk.

Profits reported for accounting purposes are distorted because of the effects of inflation on inventory and depreciation. Recent data from the United States Commerce Department suggest that corporate profits may be overstated by an astounding $50 billion or more.[3] This difference represents a gap of 30 to 40 percent between accounting earnings and what economists consider "real" earnings. Present earnings may not be sufficient to cover the escalating replacement costs of plant and equipment. Similarly, inventories that are turned into finished goods must be replaced with more expensive raw materials.

This distorted picture of performance raises the expectations of some groups and gives false reassurance to others. For example, stockholders may believe that high profit levels point to steady increases in dividends when, in fact, the true cash flow of the company is barely enough to replace existing plant expenditures. Unions, misled by high but illusory profit levels, demand more in negotiations. Government is encouraged to increase its demands on industry in the form of higher taxes, forced upgrading of plants to meet environmental standards, and other measures. Finally, consumers complain about high prices at a time of what they consider to be improving business profits.

Inflation reduces the incentive for firms to undertake capital expenditures because it increases the costs of debt and equity financing. These costs increase because lenders and suppliers of capital require additional compensation to offset the loss of purchasing power of the dollars with which they will be repaid. As an illustration, consider the following example. Suppose the rate of inflation is expected to be zero over the foreseeable future. Suppose further that a lender evaluates an opportunity to lend and decides to charge the borrower 8 percent for a one-year loan. The lender expects a return of 8 percent. Suppose, however, that prices unexpectedly begin to rise after the loan is made, and they rise by a total of 6 percent over the ensuing year. With prices 6 percent higher, the real return to the lender over the year is 2 percent, although the nominal rate is 8 percent.

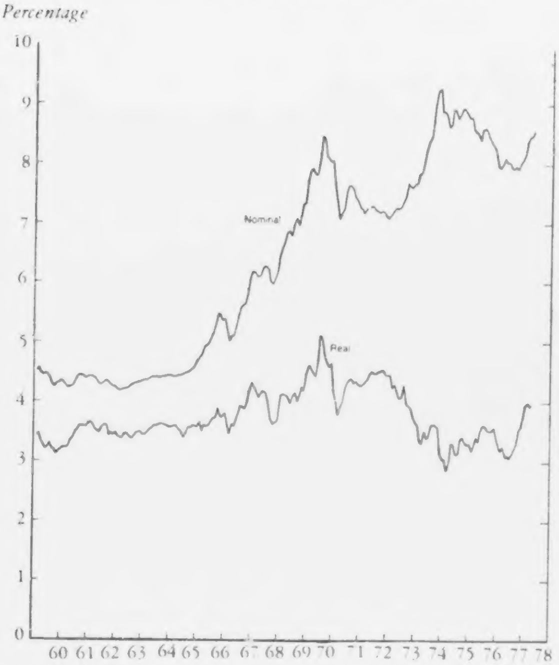
If the 6 percent inflation had been anticipated, the lender would likely have charged 14 percent for the loan to ensure an 8 percent required real return. In other words, in establishing the required nominal return, the lender adds the expected rate of inflation to the required real rate of return.

These actions by lenders lead to increasing nominal rates of interest during inflationary periods. A clear example of this phenomenon is depicted in Figure I, which plots real and nominal yields on AAA corporate bonds from 1960 to 1978.[4] Although Figure I indicates that there is some reduction in real yield during recessionary periods and increases in real yield during economic expansions, this variation appears to be quite small compared to changes in the nominal yield. The difference between the nominal yields and real yields is due to inflation expectations.

Inflation increases the risk of doing business because the economic effects cannot be fully anticipated. Moreover, inflation often has a differential effect on revenues and costs. Accordingly, the firm's planning process and forecasting activities are made more difficult. Capital investment and financing decisions are also characterized by a higher degree of risk, which consequently has an adverse effect on the valuation of corporations.

FIGURE 1

YIELD ON AAA CORPORATE DEBT



Source: John Freidenfelts and Michael Kennedy, "Price Inflation and Long-Term Present-Worth Studies," *The Engineering Economist* 24: 143-160.

STRATEGIES FOR COMBATING INFLATION

A number of strategies can be employed by management to counteract the negative effects of inflation. These strategies encompass investment, financing, and operating policies.[5]

Investment Policies

The following corporate investment policies can offset some of the effects of inflation:

A corporation can attempt to purchase used facilities at bargain prices rather than building new facilities at current prices. An example is the purchase of Federal-Pacific Electric Co., a maker of generating equipment, by Reliance Electric Co. for $345 million from UV Industries. To build these facilities at today's prices would have resulted in a much greater cost to Reliance Electric Co. The stock market represents an excellent source of possible asset acquisitions today.

If a project is started, a firm should not delay construction because a delay usually results in higher capital costs due to inflation, reduced productivity, and additional start-up costs.

Furthermore, companies need to take into account anticipated inflation in estimating cash flows by forecasting higher future selling prices because the discount rate of a project includes inflation expectations. Otherwise, a bias is introduced that can lead to a nonoptimal allocation of capital.[6]

Financing Policies

Two financing policies are also available that will reduce the effect of inflation:

First, a company can use more long-term debt financing enabling the firm to pay back the debt with cheaper dollars if inflation continues and lock the firm to an interest rate that will be lower than future interest rates on debt financing if inflation continues. Historically, firms have used long-term debt financing when they expected interest rates to rise in the future for this very reason.

Second, the corporation may consider reducing dividends so that additional funds are more available to cover the ever escalating cost of replacing plants and equipment.[7] In other words, retaining earnings instead of paying dividends enables the firm to preserve its earning power.

Operating Policies

During periods of over-supply, corporations should build up inventories within prudent limits after evaluating forecasted market conditions, escalating production costs, financing costs, and overall cash requirements. This inventory speculation can be rewarding if not carried to extremes. For example, during the recession of 1971-1972, Amax, Inc., a diversified natural resource company, increased its molybdenum inventory to almost 60 million pounds by the end of 1972. This amount was equivalent to one year's production at that time. When the market turned down in 1975, the additional inventory build-up represented the lowest cost molybdenum available. By the end of 1975, inventory was reduced to 33 million pounds. Calculations indicated that the profit from the sale of the inventory substantially exceeded the financing costs.

In addition, firms would be wise to negotiate long-term purchase contracts for raw materials at fixed prices. Conversely, suppliers of raw materials should avoid long-term contracts unless they contain price escalation clauses.

To eliminate the distortions in reported earnings previously cited and to properly gauge performance using financial ratio analysis, management should employ the following strategies:

(a) Use the LIFO (last in - first out) inventory valuation method.

(b) Use accelerated depreciation.

(c) Use either constant-dollar accounting or current-cost accounting or both.

Many firms have already switched from the first-in, first-out (FIFO) inventory valuation method to the last-in, first-out (LIFO) method primarily as a response to rampant inflation. Under the FIFO method, inventories that are first to be purchased are assumed to be the first items sold regardless of the actual order in which the goods are physically issued from inventory. Those items are assumed to have been purchased at prices that prevailed when the oldest items in the inventory were purchased. With inflation, these prices will be considerably below current prices. The costing of inventories in this manner tends to understate economic costs and overstate economic profits. The LIFO method reduces this distortion by assuming the last items purchased are the first to be sold. In this way the LIFO method results in a more accurate picture of true economic performance by matching more current costs with current revenue.

Accelerated depreciation methods also reduce the distorting effects of inflation by providing for greater depreciation charges in the early years of an asset's life resulting in a more realistic net income.[8] These higher depreciation charges increase cash flows by reducing taxes. The cash flows can then be used to replace plant and equipment. Replacing plant and equipment is necessary if firms are to maintain their productive capacity and earning power.

Constant-dollar accounting and current-cost accounting are two approaches to inflation accounting. These methods result in key balance-sheet assets such as plant, equipment, and inventories and income statement items such as depreciation expense and cost of goods sold being adjusted to reflect inflation[9]. With constant-dollar accounting, the adjustments are made by using a general price-level index such as the Consumer Price Index. Under current-cost accounting, the adjustments are calculated from today's replacement cost of each firm's fixed assets and inventories.

The net effect of these adjustments is that part of the operating results that are due to inflation, which is beyond management's control, is separated from management effects. Without these adjustments, what may appear to be a significant increase in profitability may simply be due to inflation.

However, considerable controversy exists among executives, accountants, security analysts, and academicians about the efficacy of constant-dollar accounting and current-cost accounting. Proponents of the constant-dollar approach argue that this approach is simpler, less costly to apply and is based on objective, verifiable data that can be audited and relied on while the current-cost approach is too subjective and speculative. Critics of the constant-dollar approach contend that this approach only factors out the general effects of inflation but ignores the fact that prices for specific assets rise and fall regardless of the general price level. The current-cost approach reflects these price changes in specific assets. However, generating replacement cost data involved in current-cost accounting is not an easy or objective task. Determining what it would cost to replace fixed assets a firm now holds at present prices could be a highly speculative process resulting in unrealistic estimates for many firms. On balance, it remains for firms to gain experience developing constant-dollar and current-cost data before a determination can be made as to the validity and usefulness of this data.

The strategies for combating inflation developed in this section, as summarized in Table 2, give management a clear guide for action if inflation is expected to continue.

TABLE 2

STRATEGIES FOR COMBATING INFLATION

Investment

- Be prepared to buy used facilities.
- Do not delay construction of projects that have been started.
- Forecast higher future selling prices to justify new investment.

Financing

- Use more long-term debt financing.
- Consider reducing dividends to preserve the firm's earning power.

Operating

- Increase inventory during periods of over-supply.
- Negotiate long-term purchase contracts.
- Measure performance using
  - — LIFO inventory valuation method
  - — Accelerated depreciation
  - — Constant-dollar accounting or current-cost accounting or both.

Source: Developed by the author.

SUMMARY

This article describes the consequences of inflation for corporations and delineates specific strategies for combating these consequences. The major negative consequences include distorted profits, disincentives for capital investment due to increased cost of debt and equity financing, and increased risk and uncertainty. Strategies for counteracting these effects consist of specific investment, financing, and operating policies.

A greater understanding of inflation and its effects, along with ways of dealing with it, should enable managers to make decisions that will improve economic performance and lower the risk and uncertainty faced by corporations in an inflationary economy.

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[1] While the CPI is a good indicator of the current price experience of consumers, another index called the GNP Deflator is often considered to be a better measure of the price experience of currently produced goods and services.

[2] Purchasing power is the reciprocal of the index.

[3] See "Inflation Accounting," *Business Week* (October 15, 1979), p. 68ff.

[4] Historical data on the CPI and the yields on corporate bonds were used to estimate real yields. This analysis is adapted from that used by the St. Louis Federal Reserve Bank and the University of Chicago School of Economics. The proxy for inflation expectations is a weighted sum of past values of the CPI derived from a distributed lag model. For more detailed information on this procedure, see "Price Inflation and Long-Term Present-Worth Studies," by John Freidenfelts and Michael Kennedy, *The Engineering Economist*, Volume 24, No. 3, pp. 143-160.

[5] This section draws on "Corporate Strategy for Combating Inflation," by Martin V. Alonzo, *Management Accounting*, (March 1978), pp. 57-60.

[6] For a numerical example of this bias, see James C. Van Horne, "A Note on Biases in Capital Budgeting Introduced by Inflation," *Journal of Financial and Quantitative Analysis*, 6 (January 1971), 653-58.

[7] In making this decision, it is necessary to determine if the negative impact, if any, of a dividend reduction on stockholders is less serious than the firm losing its earning power to maintaining its earning power through other means.

[8] Accelerated depreciation methods also provide for progressively smaller depreciation changes in later years which tends to overstate profits and understate asset values.

[9] In an inflationary environment, constant dollar accounting always results in upward adjustments in these balance sheet and income statement items. Under current cost accounting, the direction of adjustments depends on whether the price changes for specific assets are greater or less than the inflation rate.

Doctoral Dissertation Abstracts

COLLEGE OF BUSINESS ADMINISTRATION
ARIZONA STATE UNIVERSITY

Editor's Note: *Our readers are often interested in research undertaken by doctoral candidates in the College of Business Administration at Arizona State University. Therefore, we occasionally include one or two abstracts of doctoral dissertations in* Arizona Business. *Readers who wish further information on any of these subjects may examine the complete dissertations in the ASU Hayden Library.*

A MIXED INTEGER PROGRAMMING APPROACH TO SHOPPING CENTER PLANNING

Arthur Neal Jensen

The objective of this research was to investigate the applicability of mixed-integer programming to the space-allocation and tenant-selection decisions in the process of developing a shopping center. A mixed-integer programming model was developed which used linear constraints for the space-allocation decisions and integer constraints for the tenant-selection decisions. The objective function of the model maximized the total rental income for the development.

The general model was tested for internal and external validity. Internal validity was examined with data from a hypothetical shopping center as well as data from a number of operating shopping centers. The external validity was examined by altering the coefficients and resource limitations for one specific center. The tests provided proof of the ability of the model to correctly represent the space-allocation and tenant-selection decisions as well as maintain consistent results when changes in the formulation were incorporated.

The application of a mixed-integer programming model in the space-allocation and tenant-selection decisions represents an effective alternative to the present heuristic decision process that is currently employed by shopping center developers. The implementation of the model as a decision-aiding tool should provide the decision maker with more valid information about the potential outcome of these critical decisions.

Arthur Neal Jensen is Associate Professor of Marketing in the School of Business and Public Administration, California State University, Sacramento. The chairman of his dissertation committee was Dr. Louis Grossman, Professor of Marketing.

AN EMPIRICAL TEST OF THE UTILITY OF POLICY CAPTURING MODELS AS AN AID TO IMPROVING THE ACCURACY OF EARNINGS FORECASTS

Charles Edward Weis

The objective of the study was to evaluate the utility of policy capturing models, multiple regression models describing the way in which information variables were weighted in the process of forecasting company earnings, for improving the accuracy of subsequent forecasts. A review of the literature revealed two ways these models might improve the accuracy of subsequent forecasts: (1) As a tool to help analysts improve their own forecasts and (2) As consistent generators of forecasts. These two ways were tested in the present study.

The study design was a four-group experimental design requiring subjects to forecast earnings growth for the year 1972 for two sets of 25 companies each. The sample consisted of 122 upper-division and graduate students of business administration. The subjects forecasted 12-month earnings growth for 25 companies that were producers or distributors of relatively low-cost consumer goods. Their forecasting errors were calculated by determining the mean absolute difference between forecasted and actual earnings. The subjects were then assigned to one of four experimental conditions, with the four groups matched for initial forecasting accuracy. Each of the four groups received different types of information prior to forecasting earnings growth for a second set of 25 companies.

All subjects received their original 25 forecasts and the actual earnings growth for the original companies. One group received only that much information. The other three groups received additional information in the form of: (1) their policy capturing model, (2) an ecological model describing the weights of the same information variables in relation to actual earnings growth, or (3) both their own policy capturing model and the ecological model.

The analysis of the data contrasted changes in forecasting accuracy among the four groups and also contrasted the relative accuracy of forecasts generated by the subjects themselves, by the average forecast of each group, by the subjects' policy capturing models, and by the ecological model.

The study findings suggested some influence on forecasting accuracy occurred among those students who received either their policy capturing model, the ecological model, or both, but the influence was not statistically significant. The study results were confounded by the fact that the second set of companies may have been more difficult to forecast than the first.

The policy capturing model generated forecasts were significantly better than the forecasts of the students on whom the models were built for the first set of forecasts. This finding did not, however, carry over to the forecasts for the second set of companies, where the students were more accurate than their models.

Group forecasts were more accurate than the average students' forecasts but less accurate than the ecological model's forecasts. The ecological model generated the most accurate forecasts for the same time period but was not a good predictor into a different time period. The most accurate policy capturing models, although less accurate than the ecological model for 1972 forecasts, were more stable across companies and over time than was the ecological model.

Implications of the study findings and suggestions for refinements in methodology that might allow for a fuller exploitation of the potential of policy capturing models are discussed.

Charles Edward Weis is Associate Professor of Finance, University of Tennessee at Nashville. The chairman of his dissertation committee was Dr. Harold W. Stevenson, Professor of Finance.

The Arizona Business Scene

Arizona's Savings and Loan Associations: Facing New Challenges

Arizona's savings and loan associations (S& Ls) have played an increasingly important role in the growth of Arizona as well as in the financial community; yet they often remain subordinate to the banking industry in terms of public recognition. The savings and loan industry in 1980 has a much greater share of the state's offices, savings deposits, and total assets than in 1970, as illustrated in Table 1. Since banks have had much broader powers and services than the S&Ls, banks in Arizona have nearly twice the assets and the number of offices of S&Ls. Considerably more mortgage loans are held by S&Ls, however, than by banks ($4.0 billion in 1978 vs. $2.1 billion).

Arizona has seventeen S&Ls: thirteen are state chartered and four are federally chartered. Most are stock corporations. The associations and their assets are listed in Table 2. Savings and loans in Arizona have statewide branching authority. Most associations tend to be regionally oriented, however. Even the larger S&Ls,

TABLE 1

A COMPARISON OF BANKS AND S&Ls IN ARIZONA

Year	*Banks*	*S&Ls*	*S&L Market Share (Percentage)*	*Banks*	*S&Ls*	*S&L Market Share (Percentage)*
	Number of Institutions			*Number of Offices*		
1970	12	13	—	335	81	19
1975	15	16	—	460	183	28
1980	22	17	—	529	226	30
	Total Assets			*Savings Deposits**		
1970	$ 4,068	$1,136	22	$2,285	919	29
1975	7,611	3,561	32	4,249	2,808	40
1980	12,081	6,187	34	7,313	4,860	40

*Time and savings deposits, both public and private

Source: Condensed Statement of Reports, March 31, 1980; December 31, 1975; December 31, 1970; Arizona Superintendent of Banks

TABLE 2

ARIZONA SAVINGS & LOANS

Name	*Assets (thousands)*
Western	$1,849,577
First Federal	1,362,860
Home Federal	716,378
Southwest	517,308
Pima	424,259
Catalina	329,502
Greater Arizona	274,266
Saguaro	137,749
Canyon	117,941
Surety	117,567
American	115,721
Mohave	88,371
Security	76,457
Fidelity Federal	33,437
Frontier	17,537
Pan America Federal	4,408
Sun State	3,435

Source: Condensed Statement of Reports, March 31, 1980, Arizona Superintendent of Banks.

although having branches across the state, remain relatively minor influences in certain market areas.

In the past, the savings and loan industry has had fewer powers and services than the banking industry. Banks have been "full service" financial institutions, offering checking accounts, savings accounts, credit cards, trust services, mortgage loans, auto loans, and a multitude of other loans and services. In contrast, savings and loans have been limited by government regulations to savings accounts, first mortgage loans, and other limited mortgage-related loans. To partially offset these limited powers, S&Ls have been allowed to offer higher interest rates on most savings accounts.

The S&L business in general has therefore been relatively simple: Accept savings deposits: use the deposits to make mortgage loans. Arizona's S&Ls, however, have had a more complex business. The rapid growth of the state has resulted in heavy demand for mortgage loans. In addition, the demand for mobile homes loans and property improvement loans (particularly those for swimming pools) has been quite heavy. This demand for loans has outpaced the supply of available funds from savings. In order to meet the demands for loans, Arizona's S&Ls have had to sell many of their loans to S&Ls and other investors in other regions of the country, receiving funds that can be reinvested in Arizona mortgages. Were it not for programs such as this, Arizona could not have grown as quickly as it has. These large-scale sales of loans as well as the large number of mobile home and property improvement loans differentiate Arizona S&Ls (and those of a few other growing Sun Belt states) from S&Ls across the rest of the country.

RECENT DEVELOPMENTS

Congress has recently passed a number of new regulations, substantially broadening the traditional service of S&Ls. These new regulations bring the banks and S&Ls closer in terms of competitive powers. Savings and loans now have, or will soon have expanded lending powers, expanded credit card authority, and authority to offer interest-bearing checking accounts (known as "NOW accounts", available January 1, 1981). The interest rate advantage on savings deposits as well as limits on interest rates will be phased out gradually over the next six years. Some Arizonans have already felt the impact of one new regulation: Most S&Ls are offering renegotiable rate mortgages in place of, or in addition to, the old fixed rate mortgages.

These and other new regulations are at least partially in response to economic conditions. Savings and loans in particular have been greatly affected by the cycles in the national economy. This impact on the S&Ls has intensified the economic cycle even further. The economic conditions of 1979 through 1980 have been an excellent example of the way this cycle occurs. Dependent upon savings deposits for their main source of funds, S&Ls early in 1979 were faced with a situation where customers were withdrawing more savings than they were depositing. This was due to two conditions: (1) people saving less due to an inflation reduced real income and an inflationary "buy now" philosophy; and (2) people withdrawing their savings from S&Ls to invest in other instruments paying higher rates, such as money market funds. For a time Arizona's S&Ls were able to raise enough funds to continue lending by selling loans and by actively seeking "jumbo accounts", which are savings accounts of private and public investors having a minimum value of $100,000.

Thus, throughout 1979 and early 1980, S&Ls continued to meet the demand for mortgage loans. This availability of funds kept the housing industry active, helping to postpone the long expected recession. By March, 1980, however, the funds available for lending were essentially depleted. The little that was left was very expensive because rising interest rates had caused the cost of obtaining savings to skyrocket at the S&Ls. The lack of funds, as well as the high cost, caused the collapse of the housing industry, which is one of the first sectors of the economy to feel the effects of a recession.

By June, interest rates had fallen dramatically, and savings slowly began to return to the S&Ls, but the cost of savings is still quite high. The result is continued high mortgage rates, which have discouraged the demand for mortgage loans, here in Arizona as well as nationally.

Thus, economic conditions continue to be unstable for Arizona's S&Ls. Reacting to the effects of the recession will be a challenge to the industry for months to come. At the same time, the industry faces the challenge of more direct competition with the banks due to the new regulations. Arizona's savings and loans have quite a healthy financial condition, however, ensuring that they will remain an important part of Arizona's economy.

A Survey of Arizona Business Conditions

HAROLD FEARON

The economic downswing continues, with all indicators of economic activity posting declines in May and June, according to results from the monthly business surveys of the Purchasing Management Association of Arizona. June registered the third consecutive monthly decrease. The good news is that prices, while continuing on an upward course, are increasing at a much slower rate than at any time over the past several years, showing that progress is being made, at least temporarily, in the battle against inflation. The bad news is that the bottom of the recession still is some months away. However, the declines in new orders, production, and employment so far have been less than in the early months of the 1974 downswing, and the current recession probably will not be as deep nor will it last as long as the previous one.

The Purchasing Management Business Survey now is in its eighteenth year of monthly reporting on the condition of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state. They report whether performance on six key indicators of economic performance increased, decreased, or remained the same compared to the previous month. Since these purchasing managers deal with market forces on a daily basis, they can provide a timely and accurate picture of current business trends.

Prices paid for major purchased items continued to increase in both May and June but, following the lead of May's noticeable slackening in the inflation rate, June saw the lowest net increase rate in more than two years (since November of 1977). Higher prices were reported in June by 50 percent of the purchasing managers; 43 percent saw prices unchanged; and 7 percent said they paid lower prices than in May. The rate of inflation should continue to decline over the next several months as excess capacity continues to become available and resources become more readily obtainable.

Delivery times on shipments from vendors continued to contract in June, and at a greater rate than in May, which saw the first reduction in lead times since September, 1975. Faster deliveries from vendors were reported in June by 34 percent of the firms, which was almost twice the 18 percent who said vendor lead times stretched out. As the economy continues to develop slack, the ability of vendors to deliver more rapidly will improve and lead times will shrink further in the months immediately ahead.

Inventory levels of purchased materials dropped again in June, for the third month in a row. Forty-three percent of the firms reduced stocks, compared to only 19 percent who added to inventory. The last time there were three consecutive monthly inventory reductions was at the end of 1975. However, the inventory increases over the past four years, relative to new order and production hikes, have been moderate, which means that there are not large inventory banks to work off before the economy can bottom out and resume an

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upward course. Thus, this recession is not likely to be as deep or prolonged in Arizona as the 1974-1975 slump.

New orders received from customers dropped for the third month in a row in June, but a net decrease rate somewhat smaller than in May (which was smaller than in April). Only 25 percent said their firm booked more business in June than in May, while 42 percent saw their order books shrink even further. Still, the new order decreases are occurring at a smaller rate each month, and over the past three-month period they haven't been as great as during the summer of 1974, when the last downturn was getting underway. This gives additional evidence that this recession will not be as severe as the last one.

Production from Arizona firms dropped again in both May and June; the June decrease was well under those of April and May. Twenty-eight percent of the firms increased output; a somewhat larger 33 percent cut production. This decrease output rate is a reflection of the worsening new order picture, and it will continue unil the new order rate stabilizes. Yet, the decreases are moderating, which is encouraging.

Employment dropped for the second month in a row, and at the same rate as in May. But the two decreases were relatively minor, as Arizona firms adjust to lower new order and production rates, and far less than in August and September of 1974, which were the first two months of employment declines in the last recession. Nineteen percent increased employment in June compared to May, but a somewhat larger 25 percent pared payrolls.

Thus, there is no sign yet of a turnaround in the economic downslide; however, the May and June decreases have not been as severe as during the initial months of the 1974-1975 drop and are not likely to become as large. The Arizona economy probably will see a continuation of the recession at least through the end of the summer and into the fourth quarter. Unless the downswing intensifies greatly the next two months, it likely will be relatively short and not too severe, with signs of a recovery likely by the end of the year. The price picture is encouraging and should continue to improve, with the rate of inflation dropping markedly. This trend also is likely to continue through the end of the year, barring any major external shocks.

The results of the May and June surveys are shown in Tables 1 and 2.

TABLE 1
MAY SURVEY

	Percent of Purchasing Managers Indicating Each Response (May compared to April)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	56	38	6
Delivery time from vendors	22	51	27
Purchased materials inventory level	24	41	35
New orders received	24	32	44
Production	17	49	34
Employment	18	57	25

Source: Survey of the Purchasing Management Association of Arizona.

TABLE 2
JUNE SURVEY

	Percent of Purchasing Managers Indicating Each Response (June compared to May)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	50	43	7
Delivery time from vendors	18	48	34
Purchased materials inventory level	19	38	43
New orders received	25	33	42
Production	28	39	33
Employment	19	56	25

Source: Survey of the Purchasing Management Association of Arizona.

ARIZONA SALES OF ELECTRICAL POWER
By Months
(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1980	*1979*	*Same Month Previous Year*	*Previous Month*
April	2,514.0	2,022.6	24.3	14.1
May	2,338.7	2,302.5	1.6	−7.0

Source: Based on reports from major suppliers.

Arizona New Housing Starts: Monthly Report

APRIL, 1980

CENSUS DIVISION	1* Family	Duplex	3-4 Families	5 or More	Housing Units
	BUILDING PERMITS ISSUED				
APACHE COUNTY	8			—	8
Eagar	1	—		—	1
St. Johns	1			—	1
Springerville				—	—
Uninc. Apache Co.	6	—		—	6
COCHISE COUNTY	51			—	51
Benson	2		—	—	2
Bisbee			—	—	—
Douglas	6	—	—	—	6
Huachuca City		—		—	—
Sierra Vista	12	—	—	—	12
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	27	—	—	—	27
Willcox	3	—	—	—	3
COCONINO COUNTY	69	2	—	—	73
Flagstaff	15	2	—	—	19
Fredonia	2	—	—	—	2
Page	12	—	—	—	12
Uninc. Coconino Co.	40	—	—	—	40
Williams	—	—	—	—	—
GILA COUNTY	50	—	1	—	53
Globe	4	—	1	—	7
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	18	—	—	—	18
Uninc. Gila Co.	28	—	—	—	28
GRAHAM COUNTY	19	—	—	—	19
Pima	2	—	—	—	2
Safford	2	—	—	—	2
Thatcher	4	—	—	—	4
Uninc. Graham Co.	11	—	—	—	11
GREENLEE COUNTY	1	—	—	—	1
Clifton	—	—	—	—	—
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	1	—	—	—	1
MARICOPA COUNTY	588	3	14	15	1,592
Avondale	11	—	—	—	11
Buckeye	—	—	—	—	—
Chandler	33	—	6	—	56
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	5	—	—	—	5
Glendale	28	—	6	4	78
Goodyear	—	—	—	—	—
Guadalupe	—	—	—	—	—
Mesa	77	—	1	2	415
Paradise Valley	2	—	—	—	2
Peoria	5	—	—	—	5
Phoenix	109	2	1	3	604
Scottsdale	38	—	—	—	38
Surprise	2	—	—	—	2
Tempe	45	1	—	6	143
Tolleson	—	—	—	—	—
Uninc. Maricopa Co.	233	—	—	—	233
Wickenburg	—	—	—	—	—
Youngtown	—	—	—	—	—
MOHAVE COUNTY	86	—	2	1	99
Kingman City	—	—	—	—	—
Kingman Area	—	—	—	—	—
Lake Havasu City	37	—	—	—	37
Lake Havasu Area	8	—	—	—	8
Mohave Valley North	—	—	2	1	13
Mohave Valley South	23	—	—	—	23
Dolan Springs	8	—	—	—	8
Sacramento Valley	8	—	—	—	8
Mohave Co. General	2	—	—	—	2
NAVAJO COUNTY	18	—	—	—	18
Holbrook	—	—	—	—	—
Show Low	6	—	—	—	6
Snowflake	2	—	—	—	2
Taylor	1	—	—	—	1
Uninc. Navajo Co.	9	—	—	—	9
Winslow	—	—	—	—	—
PIMA COUNTY	462	11	6	1	528
Marana	—	—	—	—	—
Oro Valley	—	—	—		
South Tucson		—	—	—	—
Tucson	97	9	6	1	159
Uninc. Pima Co.	365	2	—	—	369
PINAL COUNTY	57	—	2	—	61
Casa Grande	6	—	—	—	6
Coolidge	—	—	—	—	—
Eloy	1	—	—	—	1
Florence	1	—	—	—	1
Kearny	2	—	—	—	2
Mammoth	—	—	—	—	
Superior	—	—	—	—	
Uninc. Pinal Co.	47	—	2	—	51
SANTA CRUZ COUNTY	6	—	—	—	6
Nogales	—	—	—	—	—
Patagonia	—	—	—		
Uninc. Santa Cruz Co.	6	—	—		6
YAVAPAI COUNTY	106	2	—	2	115
Chino Valley	4	—	—		4
Clarkdale	1	—	—		1
Cottonwood	3	—	—	—	3
Jerome	—	—	—		—
Prescott	9	1	—	1	16
Uninc. Yavapai Co.	89	1	—	1	91
YUMA COUNTY	154	—	1	—	158
Parker	—	—	—	—	—
Somerton	—	—	—	—	—
Uninc. Yuma Co.	126	—	—		126
Wellton	—	—	—	—	—
Yuma	28	—	1	—	32
TOTAL, Maricopa Co., April 1980	588	3	14	15	1,592
TOTAL, Maricopa Co., April 1979	3,032	31	13	25	4,159
PERCENT CHANGE	−81	−90	8	−40	−62
TOTAL, Arizona April 1980	1,675	18	26	19	2,782
TOTAL, Arizona April 1979	5,246	39	20	32	6,628
PERCENT CHANGE	−68	−54	30	−41	−58

N/R: No report, data for this month will be combined with data reported for the following month.

*Includes mobile homes.

Arizona New Housing Starts: Monthly Report

MAY, 1980

BUILDING PERMITS ISSUED

CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	16	—	—	—	16
Eagar	3	—	—	—	3
St. Johns	6	—	—	—	6
Springerville	—	—	—	—	—
Uninc. Apache Co.	7	—	—	—	7
COCHISE COUNTY	34	—	—	—	34
Benson	1	—	—	—	1
Bisbee	1	—	—	—	1
Douglas	3	—	—	—	3
Huachuca City	—	—	—	—	—
Sierra Vista	1	—	—	—	1
Tombstone	N/R	N/R	N/R	N/R	N/R
Uninc. Cochise Co.	25	—	—	—	25
Willcox	3	—	—	—	3
COCONINO COUNTY	65	—	—	—	65
Flagstaff	3	—	—	—	3
Fredonia	2	—	—	—	2
Page	14	—	—	—	14
Uninc. Coconino Co.	45	—	—	—	45
Williams	1	—	—	—	1
GILA COUNTY	52	—	—	—	52
Globe	N/R	—	1	—	N/R
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	19	—	—	—	19
Uninc. Gila Co.	33	—	—	—	33
GRAHAM COUNTY	19	—	—	—	19
Pima	2	—	—	—	2
Safford	3	—	—	—	3
Thatcher	N/R	N/R	N/R	N/R	N/R
Uninc. Graham Co.	14	—	—	—	14
GREENLEE COUNTY	2	—	—	—	2
Clifton	2	—	—	—	2
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	—	—	—	—	—
MARICOPA COUNTY	577	20	47	8	948
Avondale	4	—	1	—	8
Buckeye	2	—	—	—	2
Chandler	20	—	—	—	20
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	2	—	—	—	2
Glendale	29	—	—	1	33
Goodyear	—	—	—	—	—
Guadalupe	2	—	—	—	2
Mesa	62	1	7	—	92
Paradise Valley	3	—	—	—	3
Peoria	16	—	—	—	16
Phoenix	155	2	5	3	296
Scottsdale	31	1	5	3	74
Surprise	—	—	—	—	—
Tempe	28	16	22	—	147
Tolleson	1	—	—	—	1
Uninc. Maricopa Co.	219	—	7	1	248
Wickenburg	3	—	—	—	3
Youngtown	—	—	—	—	—

BUILDING PERMITS ISSUED

CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
MOHAVE COUNTY	175	—	1	2^{2}	189
Kingman City	9	—	—	—	9
Kingman Area	32	—	—	—	32
Lake Havasu City	48	—	1	1	57
Lake Havasu Area	9	—	—	—	9
Mohave Valley North	36	—	—	1	41
Mohave Valley South	27	—	—	—	27
Dolan Springs	4	—	—	—	4
Sacramento Valley	8	—	—	—	8
Mohave Co. General	2	—	—	—	2
NAVAJO COUNTY	96	—	—	—	96
Holbrook	2	—	—	—	2
Show Low	6	—	—	—	6
Snowflake	4	—	—	—	4
Taylor	2	—	—	—	2
Uninc. Navajo Co.	73	—	—	—	73
Winslow	9	—	—	—	9
PIMA COUNTY	288	12	3	8	462
Marana	—	—	—	—	—
Oro Valley	—	—	—	—	—
South Tucson	2	—	—	—	2
Tucson	93	11	3	8	265
Uninc. Pima Co.	193	1	—	—	195
PINAL COUNTY	30	2	—	—	34
Casa Grande	5	—	—	—	5
Coolidge	2	—	—	—	2
Eloy	—	—	—	—	—
Florence	1	2	—	—	5
Kearny	—	—	—	—	—
Mammoth	—	—	—	—	—
Superior	—	—	—	—	—
Uninc. Pinal Co.	22	—	—	—	22
SANTA CRUZ COUNTY	11	—	—	—	11
Nogales	N/R	—	—	—	N/R
Patagonia	1	—	—	—	1
Uninc. Santa Cruz Co.	10	—	—	—	10
YAVAPAI COUNTY	112	2	—	1	116
Chino Valley	4	—	—	—	4
Clarkdale	—	—	—	—	—
Cottonwood	6	—	—	—	6
Jerome	—	—	—	—	—
Prescott	8	1	—	1	10
Uninc. Yavapai Co.	94	1	—	—	96
YUMA COUNTY	76	—	1	1	87
Parker	2	—	—	—	2
Somerton	5	—	—	—	5
Uninc. Yuma Co.	42	—	—	1	50
Wellton	—	—	—	—	—
Yuma	27	—	1	—	30
TOTAL, Maricopa Co., May 1980	577	20	47	8	948
TOTAL, Maricopa Co., May 1979	2,796	10	15	32	4,014
PERCENT CHANGE	79	100	213	−75	−76
TOTAL, Arizona, May 1980	1,553	36	52	20	2,131
TOTAL, Arizona, May 1979	4,895	21	28	40	6,672
PERCENT CHANGE	68	71	86	−50	−68

N/R: No report; data for this month will be combined with data reported for the following month.

*Includes mobile homes.

APRIL, 1980

Arizona Building Permits: Monthly Report

CENSUS DIVISION	RESIDENTIAL* Number of Permits	RESIDENTIAL* Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permits	TOTAL Dollar Value
APACHE COUNTY	8	191,500	1	18,000	—	—	—	—	9	209,500
Eagar	2	82,000	—	—	—	—	—	—	2	82,000
St. Johns	—	—	—	—	—	—	—	—	—	—
Springerville	—	—	—	—	—	—	—	—	—	—
Unincorporated Apache County	6	109,500	1	18,000	—	—	—	—	7	127,500
COCHISE COUNTY	99	1,767,325	4	201,500	1	6,078	141	370,557	245	2,345,460
Benson	6	49,400	1	16,000	—	—	6	4,295	13	69,695
Bisbee	12	12,250	2	5,500	—	—	8	5,425	22	23,175
Douglas	8	419,062	—	—	—	—	21	57,497	29	476,559
Huachuca City	6	3,752	—	—	1	6,078	—	—	7	9,830
Sierra Vista	16	409,223	1	180,000	—	—	85	200,355	102	789,578
Tombstone	2	3,000	—	—	—	—	5	4,800	7	7,800
Unincorporated Cochise County	39	744,968	—	—	—	—	16	98,185	55	843,153
Willcox	10	125,670	—	—	—	—	—	—	10	125,670
COCONINO COUNTY	135	2,451,847	6	228,320	—	—	32	116,829	173	2,796,996
Flagstaff	33	1,194,622	6	228,320	—	—	21	106,444	60	1,529,386
Fredonia	4	3,000	—	—	—	—	—	—	4	3,000
Page	20	161,310	—	—	—	—	—	—	20	161,310
Unincorporated Coconino County	78	1,092,915	—	—	—	—	4	—	82	1,092,915
Williams	—	—	—	—	—	—	7	10,385	7	10,385
GILA COUNTY	85	1,120,907	4	143,608	2	233,600	30	2,844,527	121	4,342,642
Globe	8	90,100	2	85,000	1	200,000	6	13,600	17	388,700
Hayden	—	—	—	—	—	—	1	150	1	150
Miami	4	4,800	—	—	—	—	1	2,000	5	6,800
Payson	23	167,234	2	58,608	1	33,600	18	88,060	44	347,502
Unincorporated Gila County	50	858,773	—	—	—	—	4	2,740,717	54	3,599,490
GRAHAM COUNTY	37	556,572	2	59,982	—	—	5	3,225	44	619,779
Pima	2	28,500	—	—	—	—	—	—	2	28,500
Safford	11	86,225	2	59,982		—	5	3,225	18	149,432
Thatcher	9	162,700	—	—	—	—	—	—	9	162,700
Unincorporated Graham County	15	279,147	—	—	—	—	—	—	15	279,147
GREENLEE COUNTY	2	41,810	—	—	—	—	—	—	2	41,810
Clifton	—	—	—	—	—	—	—	—	—	—
Duncan	—	—	—	—	—	—	—	—	—	—
Unincorporated Greenlee County	2	41,810	—	—	—	—	—	—	2	41,810
MARICOPA COUNTY	1,379	20,425,521	304	52,080,988	33	6,870,552	1,818	13,438,221	3,534	92,815,282
Avondale	11	147,054	—	—	—	—	11	586,900	22	733,954
Buckeye	7	36,900	—	—	—	—	—	—	7	36,900
Chandler	70	585,996	14	412,128	2	352,000	98	371,481	184	1,721,605
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	—	—	—	—	—	—	—	—	—	—
Gilbert	14	228,000	—	—	1	50,000	27	61,550	42	339,550
Glendale	65	1,086,780	25	985,200	—	—	220	993,750	310	3,065,730
Goodyear	—	—	2	306,628	—	—	15	18,063	17	324,691
Guadalupe	1	15,200	—	—	—	—	—	—	1	15,200
Mesa	111	1,645,060	41	11,781,780	1	110,000	330	1,873,726	483	15,410,566
Paradise Valley	17	300,616	—	—	—	—	37	253,133	54	553,749
Peoria	14	165,510	1	18,000	—	—	18	44,733	33	228,243
Phoenix	435	7,482,798	158	26,023,932	12	4,334,052	547	6,724,739	1,152	44,565,521
Scottsdale	89	2,143,202	12	3,183,352	—	—	201	957,387	302	6,283,941
Surprise	7	42,850	—	—	—	—	12	8,083	19	50,933
Tempe	129	1,861,100	30	6,027,600	17	2,024,500	55	437,200	231	10,350,400
Tolleson	8	4,138	—	—	—	—	9	16,897	17	21,035
Unincorporated Maricopa County	375	4,659,149	20	3,339,368	—	—	229	840,119	624	8,838,636
Wickenburg	2	1,450	1	3,000	—	—	1	242,000	4	246,450
Youngtown	24	19,718	—	—	—	—	8	8,460	32	28,178

Arizona Building Permits: Monthly Report (Continued)

APRIL, 1980	RESIDENTIAL* Number of Permits	RESIDENTIAL* Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permits	TOTAL Dollar Value
MOHAVE COUNTY	488	4,901,209	23	2,024,142	—		121	288,616	632	7,213,967
Kingman City	23	344,164	1	40,800	—		8	8,275	32	393,239
Kingman Area	81	881,724	—	—			22	12,621	103	894,345
Lake Havasu City	55	1,438,752	4	149,480			23	161,810	82	1,750,042
Lake Havasu Area	17	144,492	—	—			7	4,970	24	149,462
Mohave Valley North	199	1,171,406	12	1,384,870	—		26	17,936	257	2,574,212
Mohave Valley South	82	589,252	4	319,200			17	11,456	103	919,908
Dolan Springs	14	148,208	1	9,792			9	11,360	24	169,360
Sacramento Valley	15	156,811	1	120,000	—		5	9,788	21	286,599
Mohave County General	2	26,400	—	—	—		4	50,400	6	76,800
NAVAJO COUNTY	33	445,834	22	182,205			9	284,988	64	913,027
Holbrook	1	4,000	—	—			2	234,000	3	238,000
Show Low	9	98,858	2	72,300			3	—	14	171,158
Snowflake	—	—	—	—			—	—	—	—
Taylor	4	43,000	—	—			—	—	4	43,000
Unincorporated Navajo County	14	292,676	18	99,405			4	50,988	36	443,069
Winslow	5	7,300	2	10,500			—	—	7	17,800
PIMA COUNTY	1,040	10,434,499	124	6,920,712	2	936,000	499	4,792,396	1,665	23,083,607
Marana	—	—	—	—		—	1	—	1	—
Oro Valley	—	—	1	2,500		—	1	1,000	2	3,500
South Tucson	—	—	7	15,400		—	3	—	10	15,400
Tucson	299	3,229,851	104	1,946,194	1	16,000	264	3,423,914	668	8,615,959
Unincorporated Pima County	741	7,204,648	12	4,956,618	1	920,000	230	1,367,482	984	14,448,748
PINAL COUNTY	81	903,520	5	158,362	1	45,000	47	414,013	134	1,500,895
Casa Grande	10	142,831	1	55,000	1	45,000	6	235,000	18	477,831
Coolidge	10	1,000	—	—	—	—	3	8,500	13	9,500
Eloy	1	12,000	1	2,500	—	—	9	27,790	11	42,290
Florence	1	26,000	—	—	—	—	3	6,287	4	32,287
Kearny	3	50,500	—	—	—	—	—	—	3	50,500
Mammoth	—	—	—	—	—	—	—	—	—	—
Superior	1	1,000	—	—	—	—	1	250	2	1,250
Unincorporated Pinal County	55	670,189	3	80,862	—	—	25	136,186	83	887,237
SANTA CRUZ COUNTY	6	330,740	—	—	—	—	2	1,100	8	331,840
Nogales	—	—	—	—	—	—	—	—	—	—
Patagonia	—	—	—	—	—	—	—	—	—	—
Unincorporated Santa Cruz County	6	330,740	—	—	—	—	2	1,100	8	331,840
YAVAPAI COUNTY	204	3,508,023	12	1,484,024	1	50,000	93	117,082	310	5,159,129
Chino Valley	7	90,700	—	—	—	—	3	3,300	10	94,000
Clarkdale	4	155,200	—	—	—	—	—	—	4	155,200
Cottonwood	16	54,498	4	557,000	—	—	1	200	21	611,698
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	33	410,705	4	521,024	—	—	58	60,349	95	992,078
Unincorporated Yavapai County	144	2,796,920	4	406,000	1	50,000	31	53,233	180	3,306,153
YUMA COUNTY	204	3,578,181	8	736,159	1	1,338,546	44	1,023,178	257	6,676,064
Parker	1	500	—	—	—	—	6	516,584	7	517,084
Somerton	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Unincorporated Yuma County	146	2,635,078	3	177,656	—	—	11	212,910	160	3,025,644
Wellton	—	—	—	—	—	—	1	1,000	1	1,000
Yuma	57	942,603	5	558,503	1	1,338,546	26	292,684	89	3,132,336
TOTAL Maricopa County, April 1980	1,379	20,425,521	304	52,080,988	33	6,870,552	1,818	13,438,221	3,534	92,815,282
TOTAL Maricopa County April 1979	3,824	91,486,936	145	31,338,576	38	16,281,418	2,416	21,990,686	6,423	161,097,616
PERCENT CHANGE	− 64	− 78	110	66	− 13	− 58	− 25	− 39	− 45	− 42
TOTAL Arizona, April 1980	3,801	50,657,488	515	64,218,002	41	9,479,776	2,841	23,694,732	7,198	148,049,998
TOTAL Arizona, April 1979	7,619	152,687,779	284	48,815,305	44	16,926,418	3,393	43,557,640	11,340	261,987,142
PERCENT CHANGE	− 50	− 67	81	32	− 7	− 44	− 16	− 46	− 37	− 43

N/C: Not collected. N/R: No report, data for this month will be combined with data reported for the following month.

*Includes mobile homes.

MAY, 1980

Arizona Building Permits: Monthly Report

CENSUS DIVISION	RESIDENTIAL Number of Permits	RESIDENTIAL Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permits	TOTAL Dollar Value
APACHE COUNTY	16	301,500	3	28,390	—	—	2	8,800	21	338,690
Eagar	3	141,000	—	—	—	—	—	—	3	141,000
St. Johns	6	N/C	—	—	—	—	—	—	6	N/C
Springerville	—	—	—	—	—	—	—	—	—	—
Unincorporated Apache County	7	160,500	3	28,390	—	—	2	8,800	12	197,690
COCHISE COUNTY	77	1,230,787	2	276,000	—	—	110	200,473	189	1,707,260
Benson	2	8,000	—	—	—	—	5	5,030	7	13,030
Bisbee	18	67,617	1	56,000	—	—	5	3,800	24	127,417
Douglas	14	463,644	—	—	—	—	22	28,242	36	491,886
Huachuca City	1	1,000	—	—	—	—	—	—	1	1,000
Sierra Vista	8	37,951	1	220,000	—	—	56	135,152	65	393,103
Tombstone	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Unincorporated Cochise County	29	652,575	—	—	—	—	14	28,249	43	680,824
Willcox	5	N/C	—	—	—	—	8	—	13	N/C
COCONINO COUNTY	127	2,438,210	8	237,433	—	—	[illegible]	344,531	186	3,020,174
Flagstaff	21	348,910	6	199,070	—	—	[illegible]	209,995	64	757,975
Fredonia	2	80,000	—	—	—	—	—	—	2	80,000
Page	20	531,100	—	—	—	—	6	—	26	531,100
Unincorporated Coconino County	82	1,430,703	2	38,363	—	—	3	126,752	87	1,595,818
Williams	2	47,497	—	—	—	—	5	7,786	7	55,283
GILA COUNTY	74	783,931	5	722,324	—	—	26	66,871	105	1,573,126
Globe	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Hayden	1	500	—	—	—	—	1	350	2	850
Miami	3	2,000	—	—	—	—	—	—	3	2,000
Payson	32	222,996	1	13,824	—	—	14	17,921	47	254,741
Unincorporated Gila County	38	558,435	4	708,500	—	—	11	48,600	53	1,315,535
GRAHAM COUNTY	42	502,359	4	20,900	—	—	2	1,700	48	524,959
Pima	4	84,300	—	—	—	—	—	—	4	84,300
Safford	18	118,950	4	20,900	—	—	2	1,700	24	141,550
Thatcher	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Unincorporated Graham County	20	299,109	—	—	—	—	—	—	20	299,109
GREENLEE COUNTY	2	60,000	—	—	—	—	2	1,100	4	61,100
Clifton	2	60,000	—	—	—	—	—	—	2	60,000
Duncan	—	—	—	—	—	—	1	500	1	500
Unincorporated Greenlee County	—	—	—	—	—	—	1	600	1	600
MARICOPA COUNTY	1,245	22,041,475	137	36,328,399	40	18,964,042	1,369	15,655,837	2,791	92,989,753
Avondale	4	21,500	3	35,680	—	—	15	78,734	22	135,914
Buckeye	6	68,815	—	—	1	200,000	2	4,350	9	273,165
Chandler	46	525,248	—	—	—	—	66	573,843	112	1,099,091
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	—	—	—	—	—	—	—	—	—	—
Gilbert	8	95,900	—	—	—	—	42	100,186	50	196,086
Glendale	56	1,442,700	9	1,447,600	—	—	124	319,800	189	3,210,100
Goodyear	—	—	2	1,670,000	—	—	12	22,050	14	1,692,050
Guadalupe	2	N/C	—	—	—	—	—	—	2	N/C
Mesa	96	1,284,070	9	612,000	5	2,396,000	239	6,483,842	349	10,775,912
Paradise Valley	14	481,290	—	—	—	—	11	121,630	25	602,920
Peoria	57	415,601	1	1,000	1	40,000	19	148,282	78	604,883
Phoenix	433	7,946,164	31	22,901,858	9	13,777,742	472	5,331,351	945	49,957,115
Scottsdale	68	2,526,566	15	3,618,061	—	—	186	1,388,142	269	7,532,769
Surprise	—	—	—	—	—	—	5	4,750	5	4,750
Tempe	130	1,461,400	45	2,686,200	24	2,550,300	43	462,200	242	7,160,100
Tolleson	7	43,600	—	—	—	—	—	—	7	43,600
Unincorporated Maricopa County	290	5,636,279	22	3,356,000	—	—	128	502,427	440	9,494,706
Wickenburg	3	66,000	—	—	—	—	2	10,600	5	76,600
Youngtown	25	26,342	—	—	—	—	3	103,650	28	129,992

Arizona Building Permits: Monthly Report (Continued)

MAY, 1980	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
	Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
MOHAVE COUNTY	297	4,259,151	22	1,529,140	—	—	210	421,918	529	6,210,209
Kingman City	27	350,864	1	500	—	—	5	386	33	351,750
Kingman Area	44	409,773	4	507,288	—	—	35	38,622	83	955,683
Lake Havasu City	65	1,723,075	7	550,702	—	—	25	161,323	97	2,435,100
Lake Havasu Area	12	130,072	—	—	—	—	11	16,876	23	146,948
Mohave Valley North	81	889,089	3	103,594	—	—	92	145,989	176	1,138,672
Mohave Valley South	44	509,469	6	349,056	—	—	32	50,498	82	90,923
Dolan Springs	9	75,658	1	18,000	—	—	2	820	12	94,478
Sacramento Valley	11	120,579	—	—	—	—	7	3,860	18	124,439
Mohave County General	4	50,572	—	—	—	—	1	3,544	5	54,116
NAVAJO COUNTY	133	2,522,543	2	81,276	6	39,584	17	224,635	158	2,868,038
Holbrook	6	75,000	—	—	—	—	3	64,900	9	909,023
Show Low	15	128,957	—	—	—	—	—	—	15	128,957
Snowflake	4	N/C	—	—	—	—	2	N/C	6	N/C
Taylor	3	83,000	—	—	—	—	—	—	3	83,000
Unincorporated Navajo County	92	1,914,536	2	81,276	6	39,584	10	63,735	110	2,099,131
Winslow	13	321,050	—	—	—	—	2	96,000	15	417,050
PIMA COUNTY	807	11,704,430	31	7,478,500	—	—	325	4,165,560	1,163	23,348,490
Marana	—	—	—	—	—	—	1	N/C	1	N/C
Oro Valley	—	—	—	—	—	—	2	651,850	2	651,850
South Tucson	6	116,268	1	1,000	—	—	—	—	7	117,268
Tucson	267	2,932,436	19	4,214,000	—	—	224	2,537,452	510	9,683,888
Unincorporated Pima County	534	8,655,726	11	3,263,500	—	—	98	976,258	643	12,895,484
PINAL COUNTY	99	942,215	2	2,800	—	—	55	151,719	156	1,096,734
Casa Grande	11	123,481	—	—	—	—	12	63,625	23	187,106
Coolidge	12	26,272	—	—	—	—	1	10,000	13	36,272
Eloy	—	—	—	—	—	—	3	3,000	3	3,000
Florence	2	39,000	—	—	—	—	5	3,600	7	42,600
Kearny	—	—	—	—	—	—	1	700	1	700
Mammoth	2	4,800	—	—	—	—	—	—	2	4,800
Superior	—	—	—	—	—	—	—	—	—	—
Unincorporated Pinal County	72	748,662	2	2,800	—	—	33	70,794	107	822,256
SANTA CRUZ COUNTY	14	611,797	—	—	—	—	2	1,200	16	612,997
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	1	4,00	—	—	—	—	—	—	1	4,000
Unincorporated Santa Cruz County	13	607,797	—	—	—	—	2	1,200	15	608,997
YAVAPAI COUNTY	176	3,655,582	8	123,380	1	30,720	40	81,805	225	3,891,487
Chino Valley	6	179,930	—	—	—	—	1	200	7	180,130
Clarkdale	1	3,000	—	—	—	—	—	—	1	3,000
Cottonwood	16	158,198	5	50,500	—	—	5	9,650	26	218,348
Jerome	—	—	—	—	—	—	—	—	—	—
Prescott	14	286,968	1	59,280	1	30,720	2	3,150	18	380,118
Unincorporated Yavapai County	139	3,027,486	2	13,600	—	—	32	68,805	173	3,109,891
YUMA COUNTY	147	2,177,860	4	414,079	1	162,162	36	353,[illegible]32	188	3,107,833
Parker	2	40,000	—	—	—	—	4	49,700	6	89,700
Somerton	11	97,520	—	—	—	—	2	300	13	97,820
Unincorporated Yuma County	84	865,449	3	376,440	—	—	9	113,416	96	1,355,305
Wellton	—	—	—	—	—	—	—	—	—	—
Yuma	50	1,174,891	1	37,639	1	162,162	21	190,316	73	1,565,008
TOTAL Maricopa County, May 1980	1,245	22,041,475	137	36,328,399	40	18,964,042	1,369	15,655,837	2:791	92,989,753
TOTAL Maricopa County May 1979	3,635	79,568,891	178	38,717,356	37	5,218,277	2,500	17,301,734	6,350	140,806,258
PERCENT CHANGE	– 66	– 72	– 23	– 6	8	263	– 45	– 10	– 56	–34
TOTAL Arizona, May 1980	3,256	53,231,840	228	47,242,621	48	19,196,508	2,247	21,679,881	5,779	141,350,850
TOTAL Arizona, May 1979	7,210	138,488,800	306	75,917,712	46	8,817,077	3,369	24,524,746	10,922	247,708,355
PERCENT CHANGE	– 55	– 60	– 25	– 38	4	118	– 33	– 12	– 47	– 43

N/C: Not collected. N/R: No report, data for this month will be combined with data reported for the following month.

*Includes mobile homes.

Maricopa County Monthly Retail Food Prices

MAY, 1980

Retail food prices in Maricopa County rose 0.9 percent in May according to a report released today by Valley National Bank. This gain follows an 0.8 percent increase during April.

The food price survey is compiled by the Bureau of Business and Economic Research, College of Business Administration, at Arizona State University. Cosponsor of the Study is Valley National Bank. The May index of 237.8 indicates that shoppers would now have to pay $23.78 for a similar basket of foods that would have cost $10.00 in 1967. These foods could have been purchased for $21.98 one year ago. The May, 1980, index reflects an 8.2 percent increase over the May, 1979, value.

This month's higher index value was the result of rising prices in the subgroups *Fruits and Vegetables* (5.1 percent), *Other Foods* (2.1 percent), and *Dairy Products* (1.7 percent). These increases more than offset a reduction in the *Meats, Poultry, Fish, and Eggs* category (2.2 percent). The *Cereals and Bakery Products* subgroup remained unchanged from April.

Sharp increases in the price of lettuce (32.1 percent), tomatoes (24.5 percent), oranges (20.1 percent), plus a moderate increase in the price of frozen vegetables (5.5 percent) led to the rise in the *Fruits and Vegetables* category. However, declines were posted for bananas (11.2 percent) and canned and dried fruits (1.9 percent). Among the *Other Foods*, cola drinks, excluding diet cola, and nuts, potato chips, and other snacks rose 7.9 percent and 5.4 percent, respectively, while margarine fell 3.2 percent. Most of the *Dairy Products* items rose this month, including butter (4.3 percent), ice cream and related products (3.5 percent), and fresh milk, other than whole, and cream (2.6 percent).

A drop in the prices of fresh or frozen chicken parts (10.0 percent), fresh whole chicken (8.5 percent), bacon (4.6 percent), chuck roast (3.8 percent), and eggs (3.2 percent) contributed to lower overall prices in *Meats, Poultry, Fish, and Eggs* despite a boost in noncanned ham (3.6 percent) and canned fish and seafood (2.1 percent). Pork and chicken prices generally continued downward due to a rise in the slaughter of these animals as production costs soared for the farmer.

In the *Cereals and Bakery Proucts* category increases in such items as rice, macaroni and similar products, and cornmeal (2.5 percent) and fresh pies, tarts and turnovers, frozen and refrigerated bakery products (2.3 percent) were equally offset by decreases in white bread (3.2 percent), fresh biscuits, rolls, and muffins (1.5 percent), and flour and prepared flour mixes (1.0 percent), with the result that prices for this overall category remained unchanged. This was the first month since May, 1979, during which a gain was not posted for the subgroup.

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States, and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	*Maricopa County May '80*[a]	*Maricopa County Feb '80*[b]	*United* States* Feb '80	*Los Angeles* Long Beach* Feb '80	*San Francisco* Oakland* Feb '80	*Chicago* North-western Indiana* Feb '80
Food Consumed at Home	237.8	230.4	241.3	239.7	247.8	243.9
Cereals and Bakery Products	227.7	220.3	236.8	241.3	243.2	244.6
Meats, Poultry, Fish, and Eggs	239.0	241.9	236.2	235.7	250.6	241.7
Dairy Products	210.6	205.6	219.5	211.8	209.9	212.5
Fruits and Vegetables	221.5	200.6	228.3	225.4	236.3	235.1
Other Foods Consumed at Home	268.2	256.5	288.0	283.5	298.8	292.7

* Computed from data contained in *The Consumer Price Index*, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisons of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indexes cannot be used to determine the actual differences in food price levels between the regions.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Maricopa County Monthly Retail Food Prices

JUNE, 1980

Retail food prices remained unchanged in June showing apparent stability following three months of successive food price increases, including a May increase of 0.9 percent.

The food price survey is compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. Cosponsor of the study is Valley National Bank. The June index of 237.9 indicates that shoppers would now have to pay $23.79 for a similar basket of foods that would have cost $10.00 in 1967. These foods could have been purchased for $22.13 one year ago. The June, 1980, index reflects a 7.5 percent increase over the June, 1979, value.

A moderate price decrease in the subgroup *Fruits and Vegetables* (-1.6 percent), *Dairy Products* (-0.2 percent), and *Other Foods* (-0.1 percent) was offset by a mild increase in the *Meats, Poultry, Fish, and Eggs* (0.7 percent) and *Cereals and Bakery Products* (0.6 percent) categories.

A seasonal drop in the prices of oranges (-22.0 percent), most fresh fruits (–14.7 percent), celery, carrots, and othe fresh vegetables (-10.3 percent), and lettuce (-8.4 percent) contributed to the drop in the *Fruits and Vegetables* subgroup. However, potatoes and tomatoes soared upward (20.3 percent and 18.0 percent, respectively), partially counteracting the decline.

The *Dairy Products* index value decreased slightly as prices dropped for fresh milk, other than whole, and cream (-1.9 percent) and other dairy products (-1.9 percent). These decreases more than outweighed the increase in ice cream and related products (1.8 percent). *Other Foods* also dropped slightly in price due to lower prices for prepared foods (-2.1 percent), lard, shortening, oil, mayonnaise, and salad dressing (-1.6 percent), and nuts, potato chips, and other snacks (-1.2 percent). However, a rise in the price of sugar and artificial sweeteners (3.0 percent) and candy and chewing gum (2.7 percent) almost offset the drop.

The *Meats, Poultry, Fish, and Eggs* category climbed upward as fresh whole chicken soared 18.1 percent and gains were also posted for canned ham (4.4 percent), noncanned ham (3.3 percent), and fresh and frozen fish and shellfish (3.2 percent). On the other hand, beef prices fell, particularly ground beef (-4.5 percent) and sirloin steak (-2.3 percent); eggs also declined in price (-3.4 percent).

A rise in rice, macaroni and similar products, and cornmeal (3.0 percent), cookies (2.9 percent), and white bread (2.3 percent) led to an increase in the *Cereals and Bakery Products* subgroup. This occurred despite a reduction in the prices of fresh sweet rolls, coffeecake, and doughnuts (-2.0 percent) and fresh cake and cupcakes (-1.4 percent).

TABLE 1
INDEX FOR FOOD CONSUMED AT HOME
Maricopa County, United States, and Selected Metropolitan Areas
(Average 1967 = 100 percent)

Group	*Maricopa County June '80*[a]	*Maricopa County Mar '80*[b]	*United States*[*] Mar '80	*Los Angeles Long Beach*[*] Mar '80	*San Francisco Oakland*[*] Mar '80	*Chicago North-western Indiana*[*] Mar '80
Food Consumed at Home	237.9	233.8	243.6	243.6	250.2	247.5
Cereals and Bakery Products	229.1	224.4	238.6	244.5	247.8	241.9
Meats, Poultry, Fish, and Eggs	240.8	246.1	237.8	240.8	249.1	244.6
Dairy Products	210.3	206.3	220.3	211.9	212.3	216.8
Fruits and Vegetables	217.8	201.8	232.4	227.7	242.3	247.3
Other Foods Consumed at Home	268.0	261.9	292.0	290.0	303.7	295.6

[*] Computed from data contained in *The Consumer Price Index*, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisons of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indexes cannot be used to determine the actual differences in food price levels between the regions.

Sources: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Metropolitan Phoenix Consumer Price Index

SECOND QUARTER, 1980

Prices of consumer goods and services in Metropolitan Phoenix rose at the modest rate of 0.1 percent during the second quarter of 1980. This increase is the smallest recorded in the Phoenix area since the first quarter of 1976. Rising prices in five major categories were offset by decreases in both *Housing* and in *Transportation*.

The low rise in prices for the Phoenix area is much smaller than the increases posted for the United States as a whole (3.6 percent) or the comparison cities of Chicago (4.5 percent) and Los Angeles-Long Beach (4.8 percent). The annual percentage change for Phoenix, since the second quarter, 1979, of 14.0 percent compares very favorably with the 14.4 percent increase for the nation as a whole and is less than that posted by Chicago (15.7 percent) and Los Angeles-Long Beach (18.1 percent).

The Consumer Price Index (CPI) for the Phoenix Metropolitan area, upon which these inflation measures are based, is prepared by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University. The quarterly CPI is based upon comprehensive surveys undertaken by the Bureau of Business and Economic Research under cooperative cosponsorship with the Valley National Bank of Arizona.

In the *Food* category, Food at Home rose at the rate of 2.2 percent, a slightly higher rate than last quarter's 2.0 percent. Large increases in the prices of Fruits and Vegetables (4.1 percent) and Other Foods (3.6 percent) were tempered by a smaller rise in Dairy Products (1.8 percent) and by a decline in Meats, Poultry, Fish, and Eggs (-1.0 percent). Food Away from Home increased by 2.8 percent, showing a reduction from the rate of increase posted in the first quarter (6.3 percent).

After the shock of first quarter, 1980, the decrease of -1.0 percent in *Housing* comes as a welcome relief. The annual percentage change for the Phoenix area was 16.2 percent, which compares very favorably with the United States figure of 17.7 percent and Chicago (19.4 percent) and Los Angeles-Long Beach (24.8 percent). While the second quarter decrease in prices in the Phoenix area appears to be in direct contrast to increases posted for the United States and the comparison cities, it must be noted that the Phoenix area figures reflect the sharp drop in interest rates that occurred in June, 1980, while the figures available at time of publication for the United States and comparison cities do not include the June changes. The quarter for the United States and comparison cities is, by necessity, March to May. The decrease in *Housing* for second quarter of 1980 in Phoenix is due to the large decline in homeownership costs. Home purchase prices fell at a modest rate of -0.7 percent while the contracted mortgage interest cost plummeted at the rate of -10.2 percent. Home improvement products such as painting supplies and masonry materials also declined in price due to sale prices for these items. Fuel and Other Utilities rose sharply in the Phoenix area, posting an 8.7 percent increase over last quarter's rates.

Apparel and Upkeep showed no increase for the second quarter of 1980. Decreases in the cost of clothing were offset by the increases in the cost of Footwear. The annual percentage change of 1.0 percent for *Apparel* *and Upkeep* in the Phoenix area is much lower than the 6.9 percent increase posted by the nation as a whole or by Chicago (4.4 percent) or Los Angeles-Long Beach (10.1 percent).

Transportation in the Phoenix area posted a -0.3 percent decline for the second quarter. This decrease breaks the trend established over the past three quarters in which *Transportation* showed the largest gains of all major categories. However, due to the effects of the previous quarters, the annual rate of change for Transportation of 19.4 percent is still the largest increase of the major categories. Public Transportation increased 4.6 percent over last quarter due to increases in airline and train fares. While automobile finance charges increased, lower gasoline prices at the pumps and lower prices for used cars resulted in the decline posted (-0.6 percent) for Private Transportation.

Medical Care in the Phoenix area rose 1.3 percent during the second quarter. This increase was mainly due to increases in the cost of prescription drugs. This increase is lower than that posted by the United States as a whole (2.1 percent) or by Chicago (3.4 percent) or Los Angeles-Long Beach (3.1 percent); nevertheless, previous quarterly increases resulted in a Phoenix annual percentage change of 15.1 percent, which was higher than that recorded by the rest of the country and the comparison cities (11.5, 13.8, and 14.1 percent respectively).

Entertainment costs rose a modest 0.6 percent in the Phoenix area during the second quarter of 1980. This low rate of increase contrasts with the 8.8 percentage jump during the first quarter. Higher costs for photographic equipment and supplies, sports and exercise equipment, and newspaper subscriptions accounted for the second quarter increase.

Other Goods and Services rose 1.6 percent in the second quarter, a change similar to that of the United States (1.5 percent) and comparison cities, Chicago (1.5 percent) and Los Angeles-Long Beach (1.9 percent). The Phoenix area increase reflects the higher costs of college tuition and, in the Personal Care category, the higher costs of cosmetics.

(Table 1 on page 39 shows the complete Consumer Price Index for Metropolitan Phoenix with selected comparisons.)

TABLE 1

METROPOLITAN PHOENIX CONSUMER PRICE INDEX SECOND QUARTER 1980

(1969 = 100)

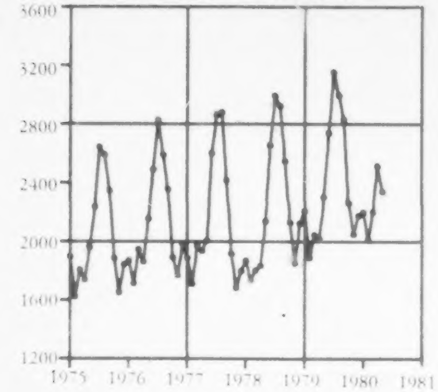
Group	*First Quarter 1980 Index*	*Second Quarter 1980 Index*	*Percentage Change from Last Quarter*	*Percentage Change from One Year Ago*
ALL ITEMS	222.4	222.6	0.1	14.0
Food and Beverages	212.0	217.0	2.4	9.4
Food	217.2	222.4	2.3	9.3
Food at Home	227.8	232.9	2.2	8.1
Cereals	224.7	231.3	2.9	14.4
Meats, Poultry, Fish, and Eggs	221.0	218.7	1.0	5.4
Dairy Products	200.4	204.1	1.8	10.3
Fruits and Vegetables	201.3	209.6	4.1	8.6
Other Foods at Home	220.5	228.4	3.6	15.6
Food Away From Home	187.1	192.3	2.8	11.9
Alcoholic Beverages	144.2	147.6	2.3	9.9
Housing	224.8	222.6	1.0	16.2
Shelter	237.5	230.5	3.0	17.9
Rent, Residential	172.3	175.7	2.0	8.9
Homeownership	240.5	239.2	-4.2	20.0
Fuel and Other Utilities	225.9	245.7	8.7	20.6
Household Furnishings and Operation	184.9	187.0	1.1	5.8
Apparel and Upkeep	170.2	170.2	0.0	3.0
Apparel Commodities	164.2	163.9	-0.2	4
Men's and Boys' Apparel	150.0	148.7	-0.8	3.9
Women's and Girls'	158.7	157.1	1.0	3.6
Footwear	209.0	215.8	3.2	6.6
Transportation	238.7	238.0	0.3	19.4
Private Transportation	238.6	237.3	-0.6	18.9
Public Transportation	238.0	248.9	4.6	28.9
Medical Care	295.1	299.0	1.3	15.1
Entertainment	182.3	183.4	0.6	9.7
Other Goods and Services	209.9	213.4	1.6	5.2
Personal Care	209.3	210.3	0.5	6.4

	United States		*Chicago*		*LA Long Beach*	
Group	*Percentage Change From Last Quarter*	*Percentage Change From one Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*	*Percentage Change From Last Quarter*	*Percentage Change From One Year Ago*
ALL ITEMS	3.6	14.4	4.5	15.7	4.8	18.1
Food	2.2	6.9	3.0	7.9	2.6	5.9
Food at Home	2.2	5.6	2.3	5.4	2.4	5.7
Food Away From Home	2.4	9.7	4.5	12.9	2.8	6.1
Housing	4.5	17.7	5.8	19.4	7.6	24.8
Shelter	4.9	20.0	8.2	22.1	8.8	28.5
Fuel and Utilities	4.6	18.8	-1.5	16.3	5.0	20.1
Household Furnishings & Operations	2.6	7.9	2.3	11.1	2.1	9.0
Apparel and Upkeep	3.3	6.9	1.2	4.4	0.7	10.1
Transportation	3.9	19.9	5.4	22.4	2.5	19.1
Medical Care	2.1	11.5	3.4	13.8	3.1	14.1
Entertainment	3.1	8.6	1.5	10.9	1.4	7.7
Other Goods and Services	1.5	8.9	1.3	8.4	1.9	11.8

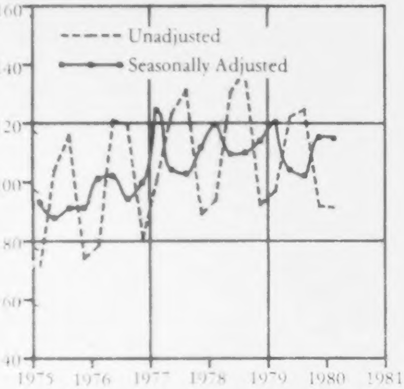
Source: Metropolitan Phoenix data compiled by Bureau of Business and Economic Research, College of Business Administration, Arizona State University; other data from U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

Arizona Economic Indicators

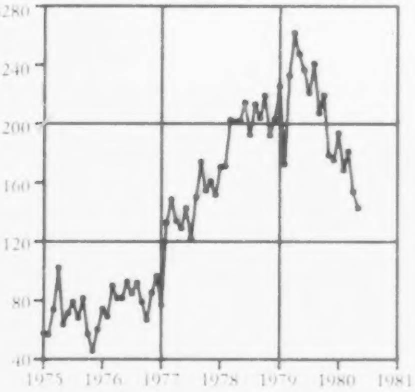
ELECTRICAL POWER SALES



ARIZONA TOURISM INDEX



ARIZONA BUILDING PERMITS



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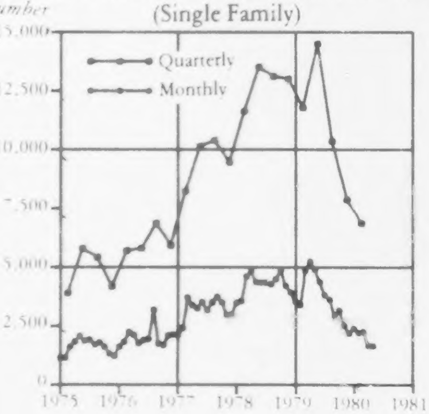

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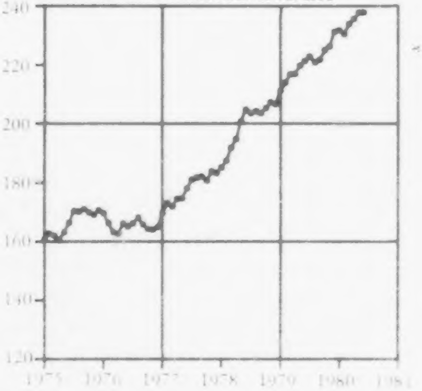
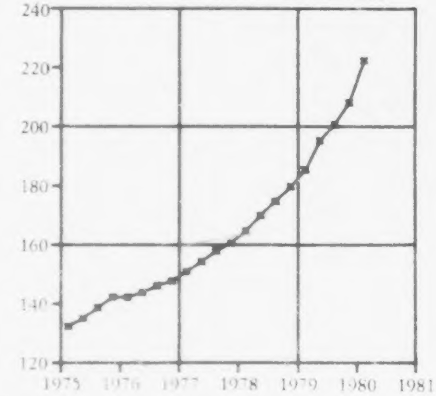


METROPOLITAN PHOENIX CONSUMER PRICE INDEX



Source: All data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University

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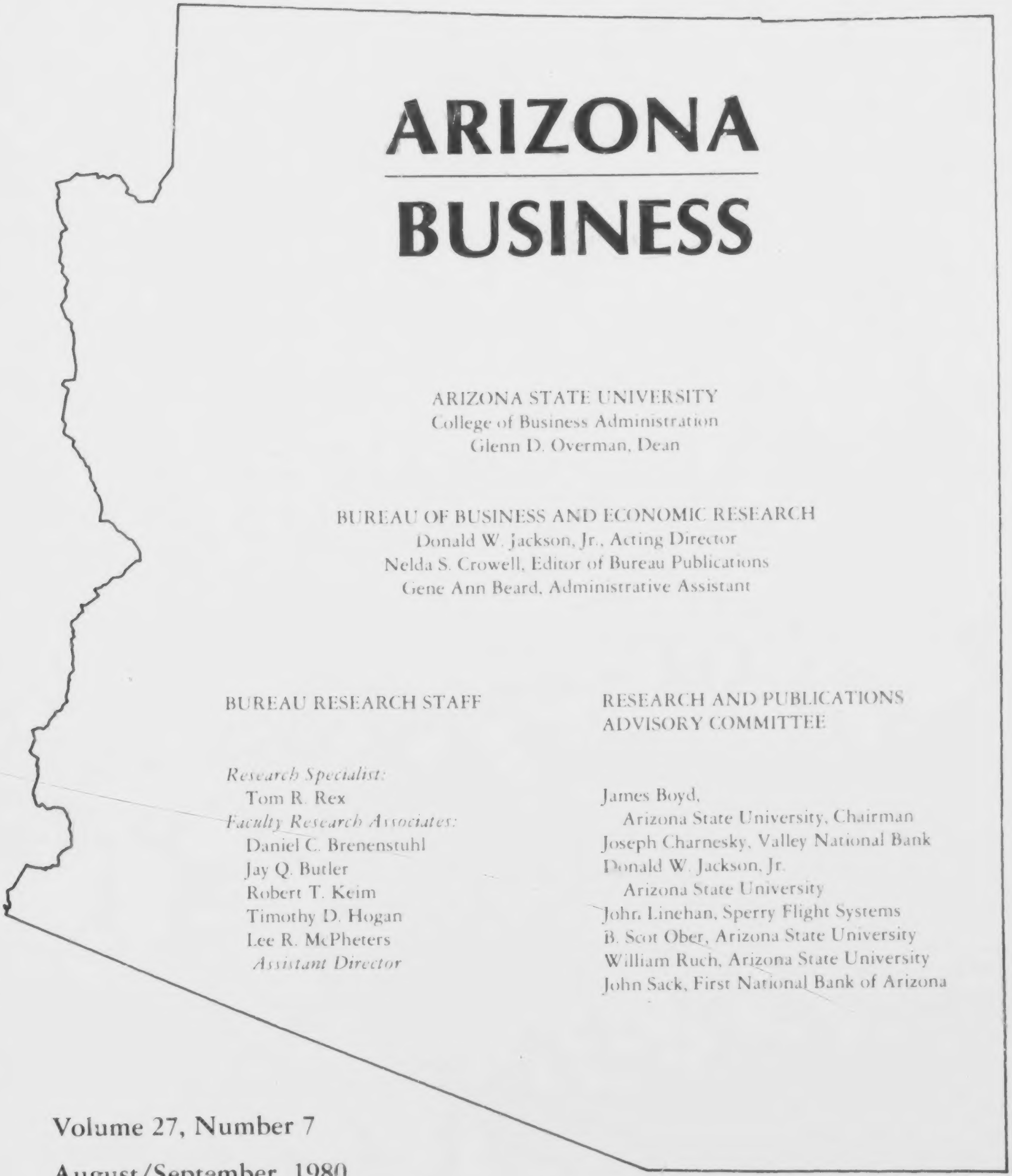

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Volume 27, Number 7

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In This Issue

The Effectiveness of Time Management Training . . .3
Martha H. Rader
Joseph C. Schabacker

Guidelines for International Financial Management 8
L. William Murray

Arizona Tourism and Conventioneer Attitudes 12
Dennis L. Hoffman
Stuart A. Lou

Doctoral Dissertation Abstract. 16
Charles E."Chase" De Long

Arizona Business Scene —
Employment Trends in Arizona 17

Announcement of New Publication 19

Survey of Arizona Business Conditions 20
Harold Fearon

Arizona Sales of Electrical Power. 21

Arizona Construction Activity:
Quarterly Report, Second Quarter, 1980 22
Jay Q. Butler

Arizona New Housing Starts:
Quarterly Report, Second Quarter, 1980 25

Arizona Building Permits:
Quarterly Report, Second Quarter, 1980 26

Arizona Building Permits:
Monthly Reports, June, July, 1980 28

Arizona New Housing Starts:
Monthly Reports, June, July, 1980 32

Maricopa County Monthly Retail
Food Prices, July, August, 1980. 34

Arizona Economic Indicators 36

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Report To The Reader

The Bureau of Business and Economic Research at ASU, which publishes *Arizona Business*, recently announced the appointment of Tom Rex to the position of Research Specialist.

Mr. Rex comes to the Bureau from First Federal Savings and Loan, where he served for over two years as Planning Analyst. In addition, he has worked as a consultant for Arthur Young & Co. accountants.

A former Graduate Research Assistant in the Bureau, Mr. Rex received his BBA degree from the University of Toledo and MBA from Arizona State University. He has a special interest in the quantitative area of business research with an undergraduate major in statistics.

In addition to writing the monthly feature article, "Arizona Business Scene," the Research Specialist also answers questions from the public on such diverse topics as the Consumer Price Index, the Urban Family of Four Budget, construction activity, demographics, tourism, employment, and manufacturing.

The Research Specialist also assists in coordinating the wide variety of public and private research projects of the Bureau, oversees the thirty graduate students who are selected to serve in the Bureau, and assists faculty members of the College of Business Administration.

* * *

We would also like to welcome John Linehan as the newest community representative on the Research and Publications Advisory Committee. Mr. Linehan is the newly appointed Director of Personnel for Sperry Flight Systems Division. Serving with him on the committee are Joseph Charnesky, Assistant Vice President and Manager of Economic Research for Valley National Bank; and John Sack, Vice President and Coordinator for Human Resource Planning and Organizational Development of First National Bank of Arizona.

These community representatives join four ASU faculty members from the College of Business Administration who also serve on the Advisory Committee: Dr. James Boyd, Department of Finance, chairman; Dr. William R. Ruch, Department of Management; Dr. B. Scot Ober, Department of Administrative Services; and Dr. Donald W. Jackson, Jr., Acting Director of the Bureau of Business and Economic Research.

The Effectiveness of Time Management Training

MARTHA H. RADER
JOSEPH C. SCHABACKER

If the old saying "You can't teach an old dog new tricks" is true, are business and governmental organizations wasting their time and money on time management training? Can a manager really learn to manage time and activities more efficiently? Will the manager continue to use these techniques, or will previous habits recur?

The phrase "time is money" indicates the extent to which time is valued in our culture. Time management is a current topic, and time management consultants have trained thousands of top executives, middle managers, other professionals, entrepreneurs, homemakers, and students in the effective use of time. Researchers have examined the use of time at all levels of the organization — from the production line to the executive suite.

TIME MANAGEMENT THEORY

Time management theory is based on the premise that people normally do not use their time efficiently. Methods of time management training focus on techniques of self-analysis and self-correction, generally stressing the following basic steps:

1. Developing an awareness of the importance of time use.
2. Keeping a record of how time is actually spent.
3. Analyzing work and setting priorities for time use.
4. Developing a plan for achieving better time management.
5. Implementing the plan.
6. Periodically reviewing and altering the plan.[1]

Time management consultants recommend such techniques as developing long and short-range objectives, keeping a periodic time log, implementing daily planning, maximizing the use of delegation, minimizing interruptions, avoiding crisis situations, eliminating time-wasting habits, and conducting business meetings more efficiently. Time management theory is based on the principle of productivity improvement. Productivity — a term which may be applied to an individual, a group, an organization, or even a national economy — is defined as output per unit of time, with output being measured in units of product or service. Thus, productivity is a ratio of output to input; in this basic equation, the only factor in denominator of the ratio is time.[2] In order for an individual manager to increase productivity, one or more of the following approaches would need to be employed:

- Increase the amount of time available.
- Increase the amount of work completed in the available time.
- Do the most important work in the available time.

Over a one-year period, survey results showed that time management training can indeed save time and money for organizations.

Martha H. Rader is Associate Professor in the Department of Administrative Services, College of Business Administration, Arizona State University; Joseph C. Schabacker is Professor in the Department of Management.

Modern time management theory, especially its application to managers, is a relatively recent development. However, its roots are based on earlier scientific management theories oriented toward improving production-line efficiency. In the early 1900s, Frederick Taylor developed the first model for increasing task efficiency. His Theory of Scientific Management was applied at the production level of the organization.[3] Frank Gilbreth's time-and-motion studies subsequently analyzed and separated production-level tasks into component motions.[4]

The growth of the field of industrial engineering in the post-World War II years broadened prior concepts of productivity improvement to include analysis of the entire factory operation.[5] Modern developments to improve production efficiency such as Performance Evaluation and Review Techniques (PERT) and the Critical Path Method (CPM) were developed from industrial engineering techniques.

Time utilization as a determinant of the manager's effectiveness was first studied in the 1950s. Carlson's pioneer research of Swedish executives in 1951 was the first to investigate executives' behavior patterns by using the managerial time log. Carlson found that the executives spent most of their time in meetings outside the firm, in committee meetings, on telephone calls, and on visits by subordinates.[6]

Additional studies of executive time management were conducted in the 1960s and 1970s. Sayles found that a large portion of a manager's time is spent in influencing people.[7] Webber found that verbal communications take a great deal of a manager's time, with 25 to 50 percent of verbal communication time being spent in conferences.[8] In a study by Stewart in 1967, which utilized diaries kept by managers to determine differences between managerial jobs, a major conclusion was that executives need to utilize their time more effectively.[9] A second study by Stewart in 1976 also revealed that managers tend to underestimate the amount of time spent in conversation.[10]

The consensus of these studies is that the inability of management to manage time effectively is a major problem. Various practitioners have developed qualitative theories, or "how-to" books in the last decade; however, a review of the literature revealed no studies of the effectiveness of these techniques. The purpose of this research project was to evaluate the effectiveness of time management training over a one-year period.[11]

THE TRAINING PROGRAM

A preliminary needs assessment was conducted by the Arizona State Training Officers Association to determine the training needs of the thirteen largest state agencies. The survey revealed the greatest need was for a training project designed to improve the productivity of state agencies, with emphasis on time mangement training.

The State Training Officers Association determined that the project would have the greatest statewide impact if managerial personnel, rather than lower-level employees, attended the training seminars. In addition to improving the efficiency of the managers themselves, the techniques and skills which the participants learned might subsequently be passed along to other employees.

In order to serve the greatest areas of need throughout the state, four separate sections of the training institute were scheduled, with fifty participants per session. Two sessions were held at Arizona State University's Center for Executive Development, one session was held in Tucson at the University of Arizona, and one in Flagstaff at Northern Arizona University.

Training seminars consisted of two eight-hour sessions held one week apart. Participants received released time from their regular assignments to attend training sessions. Activities and materials of the two sessions are shown in Table 1. The objectives of the seminars were:

- To identify and overcome time-wasting work habits.
- To set work priorities consistent with agency goals.
- To learn tools and techniques of time control.
- To delegate duties more effectively.
- To save time at meetings.
- To improve reading, paperwork, and desk habits.

TABLE 1

TIME MANAGEMENT TRAINING SEMINARS: ACTIVITIES AND MATERIALS

First Session (8 hours)	*Second Session* (One week later - 8 hours)
• Basic concepts About Time	• Time Planning Tools
• Recognizing Time Wasters	• Developing a Time Inventory
• Time and the Telephone	• Effective Goal Setting
• Importance Versus Urgency	• Delegation
• Time Management Principles	• In-Basket Techniques
• Peter Drucker Film, *Managing Time*[12]	• Effective Business Conferences
• Introduction to Personal Time Log (During the week following the first session, participants kept a time log of their activities and brought it with them to the second session.)	• Reading Improvement
	• Time Log Results — Improving Personal Efficiency
	• Other Tools and Techniques
	• Developing a Time Philosophy
	• Alan Lakein Film, *The Time of Your Life*[13]

Source. Customized program developed by Joseph C. Schabacker through the Center for Executive Development, Arizona State University.

Participants were provided with a loose-leaf notebook of materials for the program. Each participant also received a copy of two books entitled *The Time Trap* and *How to Get Control of Your Time and Your Life*.[14]

RESEARCH PROJECT

Three separate measures were used to determine project effectiveness. Project participants completed a questionnaire at the conclusion of the seminars that elicited their evaluations of the seminars and of the instructor. A second questionnaire was mailed to project participants approximately nine months after the conclusion of the project to determine participants' evaluations of the long-range effects of the seminars. The third instrument, which was mailed to project participants one year after the training seminars, was a 24-item Likert-type scale which measured perceptions of actual time management behavior patterns. This instrument was also adminstered to a control group of Arizona state managerial personnel employed in similar positions who had never received time management training.

The Evaluation. In the subjective evaluations elicited upon completion of the final seminar, the participants rated the seminars on the basis of subject, interest, and presentation on a scale of 1 to 10 (10 = highest). Participants rated the seminars very highly. For all four sessions combined, the subject was rated (on the basis of importance, interest, and value to the participant) with a mean score of 8.8, median of 9.5, and mode of 9.0. The instructor was rated (on the basis of coverage of subject, interest, and presentation) with an overall mean of 9.3, median of 9.0, and mode of 10.0.

The evaluation form also elicited participants' comments. A few of the comments are given below as examples:

> "Extremely valuable. Will provide assistance in getting more out of both professional and personal life. Should have had exposure 30 years ago."

> "This is what I need. Will be of great value to me. This course is well worth the time. Would like to see more courses like this one available to state employees."

> "Just what I needed. In fact, the whole department could use it to great advantage."

> "The course had more for me than I expected. Has already proven helpful."

> "Packed with good things. I see some radical changes in my lifestyle."

Nine-Month Follow-up Study. A questionnaire was mailed to the 200 project participants approximately nine months after the time management seminars. This questionnaire was designed to elicit participant's perceptions of the long-range effects of the project on their work behavior patterns. Of the 125 questionnaires which were returned, 93 percent reported that much of the information presented in the seminars had been useful to them. Eighty-four percent of the respondents reported that they currently were organizing their job duties better than they had been before attending the seminar. Ninety percent reported that they had shared some of the information presented in the seminar with one or more people in their agencies. This extremely high percentage confirmed the "multiplier" effect of the training project.

Participants also reported that they had saved a considerable amount of time over the past nine months as a result of time management techniques they had learned in the seminars. Respondents reported saving a range of from 1 to 10 hours per week, with a mean of 4.60 hours saved per week for all respondents.

Twelve-Month Follow-up Study. A 24-item Likert-type scale to measure individuals' responses to questions about their specific work habits was designed and mailed to project participants twelve months after the training seminars. This instrument provided a numerical index for reported time management behaviors for each individual. The instrument contained a list of statements about specific positive and negative work habits related to time management, such as:

> "I keep a list of specific items to be done each day, arrange them in priority order, and try to get the important ones done first."

> "My desk is piled high with clutter."

> "I schedule my least interesting task at a time when my energy is at its peak."

> "I keep a written log of how I spend the major portions of my working day."

> "I review my job and delegate activities that someone else can do."

Respondents were requested to check the response (never, sometimes, often, almost always, always) that best described their habit pattern in their present job. They were also asked to fill out a short questionnaire that elicited demographic and job-related information such as age, sex, educational background, yearly salary, and number of employees supervised.

Of the 200 questionnaires, 54 were returned. However, six incomplete questionnaires were excluded from analysis, leaving a total of 48 usable questionnaires.

Since the literature review had indicated that managers generally underestimate the amount of time spent in certain areas such as meetings and in conversation,[15] the questionnaire was also administered to a control group of managerial personnel from various Arizona state agencies who were employed in positions comparable to those of the time management group. The control group was attending a seminar that was also designed to improve individual productivity, although their seminar dealt with an entirely different topic (speed reading). Individuals who reported they had ever received training in time management were excluded from the control group, leaving a sample size of fifty-five for the control group compared to forty-eight respondents in the time management project group.

The two groups were very similar in age, educational background, salary, and number of employees supervised, with average ages of forty-five to forty-two, average salaries of $21,927 and $21,682, and average number of employees supervised sixty-five and fifty-six. Approximately 60 percent of the individuals in both groups were college graduates.

Findings

The instrument measuring time management behaviors revealed a mean score of 56.25 points for the time management group and a mean score of 51.57 points for the control group. Test scores for the two groups were tested for equality of variances; the variances were determined to be unequal, with approximately four times as much variability in the control group as in the time mangement project group. The groups were then tested for statistical differences, using a t-test of independent sample means with unequal variances. The t-value was determined to be significant at the .01 level of confidence, with scores for the time management project group significantly greater than the control group, as shown in Table 2.

TABLE 2

SCORES ON TIME MANAGEMENT BEHAVIORS SCALE

Group	*n*	*Mean Score*	*t value*
Time Management Group	48	56.25	2.79*
Control Group	55	51.57	

*Significant at .01 level of confidence.
Source: Survey conducted by the authors.

The data were further analyzed to determine if scores on the time management instrument were related to other factors such as age, sex, salary, and number of employees supervised. A multiple regression analysis was applied to both groups, with age, salary, and number of employees supervised as independent variables and test scores as the dependent variable. No significant relationship was found between time management behavior scores and age, salary, and number of employees supervised for either of the two groups, even at the .01 level of confidence (See Table 3.)

An analysis of variance was used to test the hypothesis that sex was significantly related to scores on the time management instrument. Although males in both groups scored slightly higher than did the females, no statistically significant differences between scores of male and female managers were found, as shown in Table 4.

TABLE 3

MULTIPLE REGRESSION ANALYSIS
USING TIME MANAGEMENT TEST SCORES AS DEPENDENT VARIABLE

Time Management Group

Independent Variable	*Mean*	*Std. Regr. Coeff.*	*t*	*p*
Age	45	-.082	-.565	.575
No. Employees Supervised	65	-.098	-.577	.567
Salary	$21,927	.282	1.663	.103

Control Group

Independent Variable	*Mean*	*Std. Regr. Coeff.*	*t*	*p*
Age	42	-.195	-1.356	.181
No. Employees Supervised	56	.005	-.030	.976
Salary	$21,682	.115	.708	.482

Source: Developed by the authors.

TABLE 4

ONE-WAY ANALYSIS OF VARIANCE RELATIONSHIP BETWEEN SEX AND TIME MANAGEMENT SCORES

	Time Management Group					*Control Group*			
	n	*Mean*	*F Value*	*p*		*n*	*Mean*	*F Value*	*p*
Male	33	59.267	1.567	.271	Male	43	51.674	.233	.631
Female	15	54.727			Female	12	50.833		

Source: Developed by the authors

The last step in the data analysis was to attempt to quantify the "time is money" thesis by determining how much money the state of Arizona may have saved over the past year by the increased productivity of the 200 individuals who were trained in time management. The 4.60 average hours per week the respondents to the nine-month follow-up study had reported they were able to save as a result of their time management training was multiplied by the average salaries reported in the one-year follow-up study on a weekly basis (fifty weeks, excluding two weeks' vacation). The final figure was $2,525 saved per person per year, which was then multiplied by 200, for a total reported estimated salary savings of $505,000 in one year. This figure applies only to the 200 managers who actually attended the time management seminars. Although the study also revealed a "multiplier effect" by 90 percent of the respondents indicating they had passed along some of the ideas presented in the seminars to others employed in their agencies, the multiplier benefit could not be quantified.

CONCLUSION

Time management training is very effective over a one-year period. This longitudinal study revealed a significantly more efficient use of time by managers who had received time management training than those who had not. In addition, this training was found to be extremely cost effective, producing estimated salary savings of $505,000. This figure represented a 30 to 1 payback of the cost of the training program. Although these findings cannot be generalized to all time management programs, it is clear that the type of training surveyed in this study does pay off.

The following references stress similar techniques for time management. Alec Mackenzie, *The Time Trap*, (New York: McGraw-Hill, 1972); Alec Mackenzie, "Education Administrator's Time Management — A Message for All," *Business Quarterly*, 41 (Summer 1976): 66-74; Edwin C. Bliss, "ABCs of Time Management," *Supervisory Management*, 23 (May 1978): 28-33; Borden Coulter and George Hayo, "Executive Time Management: How to Budget Your Time," *Advanced Management Journal*, 43 (Winter 1978): 41-48; Richard A. Morano, "Executive Time Management: Organizational Support for Better Time Management," *Advanced Management Journal*, 43 (Winter 1978): 36-40.

William A. Ruch and James C. Hershauer, *Factors Affecting Worker Productivity*, (Tempe: Bureau of Business and Economic Research, 1974), 9.

C. Bertrand Thompson, *The Theory and Practice of Scientific Management*, (Easton: Hive Publishing Company, 1972) 30-125; C. A. Horn, "Scientific Management, the Pioneers 1870-1920," *Management Services*, 22 (July 1978): 16-21.

Frank B. Gilbreth, *Motion Study*, (New York: D. Van Nostrand Company, 1911), 1-45.

Stephan and Vijaykumar Rode, "The Control of Small Weights on Hand-Arm Movements in the Horizontal Plan," *IIE Transactions*, 4 (September 1972): 228-233; W. F. Engesser and A. Ghaffari, "*Time Motion Study Improves Processing*," *Food Engineering*, (January 1970): 21-24.

Sune Carlson, *Executive Behavior: A Study of the Work, Load and the Working Methods of Managing Directors*, (Stockholm: Strombergs, 1951).

L.R. Sayles, *Managerial Behavior: Administration in Complex Organizations*, (New York: McGraw-Hill, 1965).

[8] Ross A. Webber, "Managerial Behavior, Personality and Organizational Structure," Unpublished Ph.D. thesis (New York: Columbia University, 1966).

Rosemary Stewart, *Managers and Their Jobs: A Study of the Similarities and Differences in the Ways Managers Spend Their Time*, (London: Macmillan, 1967).

Rosemary Stewart, *Contrasts in Management*, (London: McGraw-Hill Book Company, Ltd., 1976).

The project was funded by a Title I, Higher Education Act grant, which was awarded to Arizona State University. This grant funded a training project designed to improve the productivity of various Arizona state agencies. As a part of this project, the grant funded a series of time management seminars for 200 middle and upper-level managers. Martha H. Rader, Project Director, Title I Higher Education Act Grant, "Productivity Training for State of Arizona Employees," HEW No. 77-002-004.

Peter Drucker, *Managing Time*, Film (Rockville, MD: BNA Communications, 1970).

Alan Lakein, *The Time of Your Life*, Film (Hollywood: The Cally Curtis Company, 1968).

Mackenzie, 1972, Alan Lakein, *How to Get Control of Your Time and Your Life*, (New York: D.H. Wyden, 1973).

Stewart, 1976.

Guidelines For International Financial Management

L. WILLIAM MURRAY

Managing the financial operations of even the small multinational firm has become both more complex and less understandable for the nonfinancial executive. The typical multinational firm faces three types of financial risks:

Political risk is the risk of losing all, or a substantial part, of the value of assets due to host government takeover (expropriation), restrictions on business activities (e.g., import quotas, "hire local" requirements), and/or restrictions on removing earnings and capital (exchange controls).

Exchange risk is associated with changes in the values of one currency in terms of another.

Translation risk is the risk of holding assets in foreign operations given the subsequent accounting consolidation which must take place to satisfy stockholder and regulatory (e.g., SEC) reporting requirements.

The management of each of these risks warrants considerable attention. The complexities of international, political, economic, and legal relationships, plus accounting conventions, require the expertise of the trained professional financial manager, tax accountant, and attorney. However, several operational tactics underlie even the most complex financial practices. These guidelines can help the international manager to reduce these risks to more manageable levels while not concurrently restricting the normal business activities of the firm.

The key to successful multinational financial management involves defensive actions that will reduce the exposure of a firm's assets to exchange rate fluctuations and political risk.

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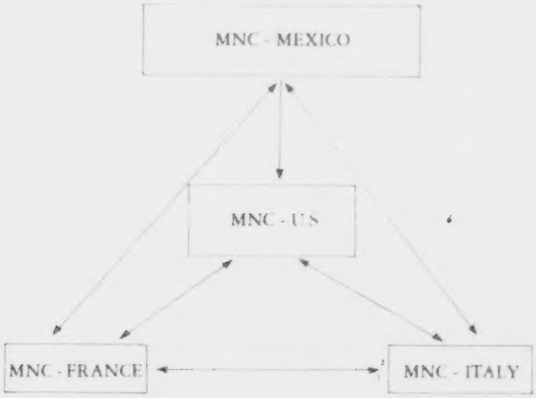
FINANCIAL OPERATIONS: AN EXAMPLE

The financial operations of the multinational firm have one simple common denominator: companies whose operations are located in more than one country are affected every time there is a change in the relative values (prices) of the currencies involved. The effect of changes in the price of one currency in terms of another currency is seldom either totally good or bad. Furthermore, this effect has immediate points of impact (e.g., an increase in the price of imported raw materials), and effects that will not show up until either the end of the accounting cycle or at the point when the local host government subjects the firm's assets to special attention.

Assume that a United States based corporation with $5 million equity has subsidiaries in Mexico, France, and Italy; in each case the assets are valued at $100,000. In establishing these foreign operations, the United States parent corporation contributed $25,000 in equity to each subsidiary and had loaned each subsidiary an additional $60,000. The management philosophy of this firm requires that these subsidiaries buy from, and sell to, each other as well as to the parent corporation; that is, each unit of the corporation has a set of intracompany accounts in which are kept the accounts receivable/payable credit extensions within the firm. (See Figure I).

FIGURE I

MULTINATIONAL FINANCIAL FLOWS



Source: Developed by the author.

In this example, the parent firm desires to reinvest 75 percent of locally earned profits while returning (repatriating) 25 percent to the parent firm as dividends. To add yet another element of realism to the example, assume that each subsidiary will be required to pay to the parent corporation $15,000 annually in royalties and $5,000 annually in management fees.

Before beginning a detailed discussion regarding this example, some of the potential impacts should be noted. First, if the United States dollar increases in value as against the peso, franc, and/or lira, there will be an immediate impact on the subsidiaries. Each payment in dollars from each of the subsidiaries to the parent corporation (interest, dividends, purchases) is now more expensive, while each receipt in dollars from the parent (intracompany sales) is now more valuable. To the parent, however, the impact point is largely deferred until the end of the accounting cycle. If the parent requires that all intracompany transactions between itself and its subsidiaries be denominated in dollars, the effect of the increased dollar value will be noted as a loss of value of the assets held by each of the foreign subsidiaries. This result is then noted on the parent firm's profit-and-loss statement as a "Foreign Exchange Loss."

These observations can be shown dramatically by interjecting into the example some real exchange prices. By selecting two real dates as an example (December 12, 1979, and January 11, 1980) one can note the effects of exchange prices. During this one-month interval, the United States dollar value of the peso rose from $.04382 to $.04386; the franc increased in value from $.2456 to $.2484; and the lira increased from $.001233 to $.001244. With all other factors equal, the Mexican subsidiary would receive 0.09 percent *less* for the goods it sold to the parent corporation for dollars, while the French and Italian subsidiaries would receive 1.14 percent and 0.89 percent less respectively for their intracompany sales to the parent.

Two other effects must be shown from the example. First, during this one-month period, the value of the peso fell against both the franc and lira thereby making any intracompany purchases of the Mexican subsidiary from either the French or Italian subsidiary more expensive (assuming that those purchases were made in those local currencies). If the Mexican subsidiary were directed to buy from the French subsidiary and pay for this purchase in pesos, the effect of this change in currency value would shift to the French subsidiary, which would now receive lesser-valued pesos in payment for the goods sold by them to the Mexican firm.

Second, the impact of these exchange price changes on the parent firm's accounting statements is important. Current accounting conventions, notably FASB 8, have a less than symmetrical (and, some would say, logical) impact.[1] In an overview of this situation the parent firm's consolidated statements would reflect the increased value (due to the change in the value of currencies) of all cash, accounts receivable, and short and long-term liabilities, while the *historical* exchange rates (i.e., the rates which prevailed when the firm acquired them) would be used to value all fixed assets. Inventories held by the subsidiaries would be valued on the parent's books at the *lower* of either the foreign inventory cost times the historical exchange rate (i.e., the United States dollar value of the foreign inventory at cost), or the foreign inventory at market prices times the current exchange rate (i.e., the United States dollar value of foreign inventory at current market value). All revenues and operating expenses of these subsidiaries would be translated to the parent's books at current exchange rates while their cost-of-goods-sold and depreciation would be translated at historical exchange rates.

With the simple data assumed for the example, it is not possible to trace fully the impact of the changes to the corporation's financial statements due to translation. But it is sufficient to note the many recent experiences of United States-based multinational firms that are now showing foreign exchange gains or losses on their profit-and-loss statements for *financial* rather than *operational* reasons.

A PRAGMATIC APPROACH

The financial losses due to a host government's actions to control multinational firms' financial flows, including the expropriation of assets, are inextricably interwoven with the operating style of the firm. All countries are likely to take a dim view of foreign investors who fail to heed the demands of the local socioeconomic environments.

Foreign firms can expect to be singled out for special controls on their activities because of their proclivity to remove locally earned profits and charge their subsidiaries with large royalty and management fees, and whose access to international financial markets negates local controls on borrowing for investment spending. At the heart of this issue are philosophy and operational tactics of the multinational firm; the wisest long-term financial policy to offset this type of risk is to minimize the "foreignness" of the firm whenever possible.

Minimizing International Financial Losses

The following list presents a number of practices successfully employed by multinational firms to minimize their financial risks. While certainly not an exhaustive list, it includes many guidelines beyond which the firm can pursue more complex financial practices if warranted.

- ***Invest for the Long-run.*** In the absence of unusual once-in-a-lifetime opportunities, few firms pursue investment decisions without considering their potential for profitable operations over a period of at least five to ten years. This is especially significant for investment in foreign settings as it has two important residuals: First, the firm demonstrates its confidence in the local (foreign) environment and profit potential by reinvesting locally-earned profits. Second, the firm becomes "less foreign" when its actions demonstrate a commitment to sustaining the socioeconomic growth of the local economy. Political risks can be reduced substantially since the firm is less likely to be considered "one of those foreign firms."

- *Borrow locally.* As noted in the example above, the use of foreign debt adds to the firm's exchange risks. In an attempt to offset part of this risk, many multinational firms consciously pursue a policy of "balanced exposure" to exchange rate fluctuations. This policy suggests that if the firm needs to borrow in order to finance a $100,000 investment in France, for example, the source of this investment should be a loan in francs. Thus, the capital required by the firm in each currency is exactly offset by loans in that currency.

  This policy offers other advantages to the firm also. First, the firm's expropriation risks are directly reduced by the loan. Think of the outcry that would result from the local government expropriating the assets of a foreign firm if these assets are security for a loan from a *local source.* Second, local borrowing increases the validity of the subsidiaries' profit-and-loss statement in terms of evaluating the local managers. Consider the situation in which the local subsidiary's profit-and-loss shows a loss, but a substantial part of that loss is due to foreign exchange losses that occurred because the manager was forced to repay with a currency that has decreased in value. Third, borrowing locally will positively affect the local lending institutions as well. In many developing countries, lending to an established firm increases the quality of that lending institution's experiences, enhancing the quality of their loan portfolios.

- *Sell equity locally.* This policy is becoming more popular because it lessens the amount of the firm's equity exposure in a foreign project. Furthermore, the addition of local investors reduces the "foreignness" of the firm.

- *Intracompany lending.* This particular financial policy is a two-edged sword, but has definite advantages in certain situations. Consider the expanding subsidiary that is in need of an injection of capital. From the two generic sources, debt and equity, the multinational is well advised to consider the local implications of the financial flows generated from each. On one hand, the act of paying dividends from the subsidiary to its foreign parent is, to some extent, a tacit admission of "no confidence". On the other hand, the repayment of debt has more favorable implications, especially if the parent can demonstrate that the debt is necessary to fund the subsidiary's expansion of inventory and accounts receivable to support increased export sales. The net result is that a foreign government is much less likely to block or restrict principal and interest payments than to impose constraints on the use of its valuable foreign exchange for dividends.

  However, such lending increases the exposure of the parent to foreign exchange price fluctuations. Some limitation of this act's impact can be achieved by intracompany debt denominated in the currency of the subsidiary.

- *Intracompany transactions.* The operational requirements for short-term capital needs, given the potential exchange risks noted above, and (hopefully) blessed with foresight, suggest that the key elements of international financial risks can be reduced if one always borrows in currencies whose value will decrease relative to the firm's parent country currency, and by holding the firm's assets in currencies whose value will increase. While this principle is intellectually appealing when dealing with outsiders, its usefulness is limited in terms of intracompany borrowing/lending.

Generally the multinational firm must follow the logic of prudent investment and recognize that in the short run, the company can redirect cash flows among the units of the firm to reduce exchange risk. For example, if one unit of the multinational firm extends short-term credit to another unit of the firm, and the currency of the debtor unit is expected to decrease in value, the preferred managerial policy is to direct that the debt be paid as quickly as possible. Thus, the firm shifts its resources from the "bad" currency to the "good" currency. A related situation that often occurs is the effect of exchange controls on multinational financing. By intracompany pricing (transfer prices) the parent can, in anticipation of having the free flow of intracompany funds blocked by government actions, shift losses into high tax, exchange-controlled countries where the tax credit benefits can be maximized. This permits tax credits, rather than cash, to be transferred and has often been found to result in higher after-tax earnings for the multinational firm as a whole.

- *Using hedging and covering operations.* Until recently any discussion of the use of foreign exchange markets by the multinational firm was regarded as wild speculation not to be undertaken by a "responsible" firm. There are, however, instances where the logical use of these markets is warranted.

This is merely the logical extension of the "balanced exposure" thesis. When one *hedges* (an act to protect against a decrease in the value of assets held abroad) or *covers* (an act to protect against a decrease in the value of a cash flow) one is buying insurance. If one buys fire insurance, the cost of the premium is the only loss sustained (assuming that the correct coverage is purchased) in the event of either a fire or of no fire.

The use of the forward exchange markets is easily described. Suppose that the multinational firm recognized that a purchase of machinery from a West German firm, requiring a payment in marks six months from now, could possibly become a more expensive purchase if the mark continues to increase in value relative to the dollar. The "insurance" available is a six-month forward contract calling for the delivery of marks at a set price in United States dollars. The difference between today's price of marks (in dollars) — the spot price — and the price of marks for delivery in six months — the forward price — is the "insurance premium." By using the forward market, the multinational firm knows the real price of its purchase because it is locked into the forward sale of the currency it needs to pay the bill. In the absence of such action, the firm risks any increase in the price of marks.

The cost of such insurance is obviously just another cost of doing business — and subject to essentially the same logic as any other decision to incur expenses. But given the complexities of the foreign exchange markets, and the accounting treatment of covering and hedging expenditures, the prudent multinational manager may wish to examine this suggestion in more detail.[2]

CONCLUSIONS AND RECOMMENDATIONS

Managing the financial operations of the multinational firm requires recognition of politcal, exchange, and translation risks. Many multinational firms have successfully developed a set of baseline practices, or guidelines, that can effectively reduce the exposure of the firm's assets to exchange rate fluctuations and political risk. The key ingredient of multinational financial management is the recognition that the firm's costs of doing business are subjected to the risk of currency value changes which necessitate the use of appropriate defensive actions to preserve the value of the firm's cash flows.[3]

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[1] Given the complexity of this issue, it is recommended that one contact a competent international accountant. However, for an excellent overview of FASB 8, see James Dempsey, "The Simple Arithmetic of FASB 8," *Euromoney* (February, 1979).

[2] For a somewhat detailed, yet straightforward discussion of hedging, see Rita Rodriquez, "How the Fear of Reporting a Loss Distorts Hedging Discussions," *Euromoney* (September, 1979).

[3] The following selected references will provide the reader with further information on the topic of international financial management: David Bradley, "Managing Against Expropriation," *Harvard Business Review* (July-August, 1977); David K. Eiteman and Arthur I. Stonehill, "Chapter 11: Positioning of Funds," *Multinational Business Finance*, Second Edition, (Reading, Mass.: Addison-Wesley, 1979) pp. 391-427; Charles N. Henning, William Pigott, and Robert Haney Scott, "Chapter 18: Evaluating International Investment Opportunities," *International Financial Management* (New York: McGraw Hill: 1978) pp. 456-488; Stephen Kobin, "When Does Political Instability Result in Increased Investment Risk?" *Columbia Journal of World Business* (Fall, 1978); and Somerset Waters, "Exposure Management is a Job for All Departments," *Euromoney* (December, 1979).

Arizona Tourism and Conventioneer Attitudes

DENNIS L. HOFFMAN
STUART A. LOW

Tourism ranks as one of the most important elements of the Arizona economy in its impact both on the Gross State Product (GSP) and on the employment of Arizona citizens. Consequently, any actions the state can take to promote the tourism industry and foster the image and reputation of Arizona as a desirable vacation locale are important.

In 1979, tourism ranked second in terms of its contribution to Arizona income, as shown in Table 1. The tourism industry provided slightly over $4 billion to the state's product in 1979, which represented an 18 percent increase from the 1978 figure of $3.4 billion. In absolute terms, the tourism industry expanded by $615 million.

An additional impact is seen in the tax receipts generated by tourism. In 1979, tourism provided $201 million of gas and sales tax revenues to the state treasury, which means that each Arizona citizen pays less in taxes for the services that also receive tax revenue as a result of tourism.[1]

TABLE 1

MAJOR SOURCES OF ARIZONA INCOME
(Millions)

	1979	*1978*
Manufacturing output	$4,800	$3,900
Tourism	4,041	3,426
Value of Mineral Production	2,466	1,671
Value of Agricultural Production	1,732	1,471

Source: 1978 *Arizona Statistical Review*, September, 1979; 1979 figures are preliminary.

Tourism is important to the Arizona economy not only for its impact on GSP, but also for the jobs it directly or indirectly creates. Table 2 shows that 74,000 individuals in the state were directly employed providing goods and services to the tourism industry in 1979. In addition to this, 123,000 individuals were employed in jobs that were indirectly connected to tourism.[2]

TABLE 2

DIRECT AND INDIRECT EMPLOYMENT IN ARIZONA RELATED TO TOURISM AND TRAVEL IN 1979

Type of Employment	*Number*
Direct	74,000
Indirect	123,000
Total	197,000

Source: 1979 Report of the Phoenix and Valley of the Sun Convention and Visitor's Bureau.

Convention goers who visit Arizona are most likely to return to the state when they have a favorable impression of the attitudes of the people they come in contact with and when they are favorably impressed with the hotel and motel service.

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TOURISM AND CONVENTIONS

One important group of tourists in the state consists of those individuals attending conventions. Table 3 shows the economic value of conventions in 1979. With a total convention attendance of over 100,000 individuals and the potential of an even greater number, the opportunity to make a favorable impression certainly exists. Furthermore, as convention-goers return to vacation in Arizona with their families, the tourism industry as a whole is stimulated.

TABLE 3

CONVENTIONS IN ARIZONA IN 1979

Number of conventions	62
Attendance	101,375
Total expenditures	$45,619,000
Average expenditures per person per stay	$450

Source. 1979 Report of the Phoenix and the Valley of the Sun Convention and Visitor's Bureau. The above are estimated figures.

This article discusses conventioneers in Arizona and attempts to isolate those factors that result in a favorable impression of Arizona, which in turn could result in more tourists from among conventioneers in the future. The article then addresses the issue of what policies the state can pursue to increase the favorable impressions convention-goers obtain and thus, indirectly, stimulate the tourism industry in future years.

Influential Factors

A number of factors may influence the conventioneers' attitudes. Some of these, such as favorable weather conditions, are beyond control. However, other factors that can be adjusted by policy action may play an important role in establishing a positive impression of Arizona. Conventioneers' feelings about hotel/motel service, restaurants, shopping, recreation activities and the attitude of the individuals a convention visitor meets during the trip may be hypothesized to influence the likelihood that the person would express a desire to return for a vacation in Arizona.

If it is determined that one or more of the above factors does significantly influence the desire to vacation in Arizona, various state incentive programs might be instituted to further stimulate the tourism industry. For example, if restaurant or hotel services strongly influence visitors' impressions, the state could encourage special hotel rates or dinner packages by coordinating "discount coupon books" or providing incentives to participating businesses. If the quality of recreational facilities results in an increased desire to return to Arizona, the government could allocate funds toward improvement of these recreational facilities. Finally, if resident attitudes influence a conventioneer's desire to return, the state could finance an advertising campaign to convince Arizona residents that kindness and helpfulness to visitors enhance the tourism industry.

An additional factor that may influence conventioneers' attitudes is the cost of a stay in Arizona. The impact of cost is uncertain. An individual who spends considerable money at a convention may think that Arizona is an expensive place to vacation and may choose not to return. On the other hand, an individual who spends a lot of money is likely to participate in more activities and may be left with a very favorable impression of Arizona. In this case, higher expenditures may mean that the conventioneer is more likely to want to vacation here.

If convention-goers indicate that overall cost is a major concern, the state could institute a program to lower these costs. This could involve convention discounts when the convention is scheduled, or encouragement of hotel/restaurant/recreation discounts available to convention and tourist visitors. These programs could help instill in conventioneers the belief that Arizona is a relatively inexpensive place to visit.

THE SURVEY AND EVIDENCE

The impact of conventions on future vacation visits was analyzed using the results obtained in a questionnaire given to participants at a number of conventions in Arizona in 1978. The questionnaire was administered jointly by the Phoenix and Valley of the Sun Convention and Visitor's Bureau, and Arizona State University.

The primary variable of interest in the survey was the conventioneers' response to the question: "Would you return to the Phoenix area for a vacation visit?" Approximately 83 percent of the respondents answered that they would desire a vacation visit. The goal of this study was to attempt to determine if some factors are more likely to lead to this desired return visit than others.

Another set of questions in the survey asked convention particpants to rate the hotel, restaurants and bars, shopping establishments, recreational facilities and attitude of Arizona residents during their visit. The responses received are presented in Table 4.

The summary results of Table 4 show that conventioneers generally have a positive reaction toward all of

TABLE 4

RATINGS OF CONVENTION VISITORS
(Percentages)

	Excellent	*Above Average*	*Average*	*Below Average*	*Poor*	*Average Response*[a]
Hotel	54	24	20	2	0	4.30
Restaurant and Bar	32	37	28	2	1	3.97
Shopping	26	41	30	2	1	3.89
Recreation	34	31	25	5	5	3.84
Attitude of Arizona residents	42	39	18	0	1	4.21

[a] Average responses are on a 5 point scale, with 5 representing excellent and 0 poor.
Source: Survey conducted by the authors

the services offered. Viewing the average responses, it is seen that hotels rated best, slightly above the attitude of Arizona residents, while the remainder of the services were in a group slightly further back. While the results show the average response of conventioneers to each factor, they do not show whether any of these factors is important in leading to the desire to return for a vacation visit or how large an impact any of these factors might have on future vacation visits. This issue can most effectively be dealt with by analyzing the correlations between the conventioneer's ratings of the services and his/her expressed desire to return. This analysis allows a ranking of factors according to their influence upon the attractiveness of Arizona as a place to visit. The sample revealed the ranking that is presented in Table 5.[3]

TABLE 5

RANKING OF FACTORS BY LEVEL OF IMPORTANCE

1. Attitude of Arizona residents
2. Hotel or lodging service
3. Restaurant and bar
4. Recreation
5. Expenses
6. Shopping

Source: Survey conducted by the authors

There is a difference in the ordering of factors in Tables 4 and 5 because Table 4 displays mean ratings of factors while Table 5 reflects the relative contribution of a factor in influencing the desire for a return visit. For example it was found that while hotel and lodging received a higher mean rating from the overall sample, those respondents who were favorably impressed by the attitudes of Arizona residents were more likely to express a desire to return than those who were equally impressed with their accommodations.

A number of inferences may be drawn from Table 5. The major factor in instilling in convention visitors the desire to return is their perception of the attitudes of their hosts. Being friendly, cooperative, and helpful to conventioneers is most important in stimulating them to return to Arizona for a vacation. An individual with a favorable attitude about Arizona residents is found to be 29 percent more likely to return than a conventioneer with an unfavorable attitude. Therefore, instilling in this sample of convention visitors a favorable impression of the friendly Arizonan greatly improved the likelihood that they will want to return for a vacation visit.

The second most important factor influencing conventioneers is their rating of hotel or motel service. An individual who has a favorable impression of the service is 17 percent more likely to return than a conventioneer with an unfavorable opinion. Attitudes about restaurants and bars are even less important in attempting to predict whether a conventioneer is likely to desire to return. A favorably impressed individual is only 8 percent more likely to desire a vacation visit than someone with an unfavorable opinion.

Finally, the study shows that attitudes about shopping facilities and recreational opportunities are almost totally unimportant. These factors cause less than a 3 percent change in the likelihood of a desire for a return visit for favorably and unfavorably impressed conventioneers.

In addition to the questions about attitudes, the survey also determined the expenses of the individual during the convention visit. The survey shows that the average individual spent approximately $77 per day, but the amount of expenditures does not greatly influence an individual's desire to return for a vacation visit. An additional $10 per day expenditure lowers the likelihood of a return visit by only 0.5 percent.

A number of other questions relating to the conventioneer's home area and the season during which the convention occurred were asked. As expected, the vast majority of conventions in Arizona take place during the winter so it was not possible to determine whether the time of the convention influences the desire to return. With respect to the area from which the individual travels, the survey shows that those conventioneers who travel farthest are less likely to desire to return, although this impact was small. The obvious explanation for this is the added expense of a long journey to Arizona.

CONCLUSIONS AND POLICY PRESCRIPTIONS

Certainly tourism is an important state industry. An analysis of the reactions of conventioneers has identified some major factors that have made Arizona such an attractive place to visit, thereby sustaining this industry. The sample suggests that conventioneers are most impressed by the attitude of the people they come in contact with during their visit. Favorable lodging facilities and restaurants also increase the conventioneers' likelihood of wanting to return to Arizona; but total expenditures, shopping facilities, and recreation facilities appear to have little impact upon conventioneers' likelihood of desiring to return for a vacation in the state.

While this sample comprises a small portion of the individuals that visit Arizona each year, it is still possible to draw policy conclusions from the evidence presented. It appears that many of the programs proposed would indeed have a positive impact upon visitors' impressions of our state and hence promote tourism. However, dollars spent in advertising campaigns that encourage Arizona residents to be congenial hosts may be the most productive. The Arizona Office of Tourism has recently conducted such a campaign involving statewide seminars conducted at Kiwanis and Rotary Clubs. The results of this study indicate that expansion of these types of programs could have an important role in stimulating tourism in Arizona.

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[1] The July 1 revocation of the state sales tax on food will clearly reduce this figure in coming years.

[2] The indirect employment of tourism arises due to the multiplied effects of tourism expenditures. A portion of each dollar spent by a tourist is respent by the recipient in a process that continues in decreasing amounts. The multiplier used to estimate the indirect employment effects of tourism was generated in the mid-1970s from the Economic Demographic Projection Model of the Arizona Economy.

[3] The survey provided a sample of size 132. As the dependent variable was qualitative (the individual either did or did not express a desire to return), ordinary least squares techniques are inappropriate and the probit estimation technique was employed. Results of this estimation are summarized in this paper. Detailed results are available from the authors upon request.

Doctoral Dissertation Abstract

COLLEGE OF BUSINESS ADMINISTRATION
ARIZONA STATE UNIVERSITY

Editor's Note: *Our readers are often interested in research undertaken by doctoral candidates in the College of Business Administration at Arizona State University. Therefore, we occasionally include one or two abstracts of doctoral dissertations in* Arizona Business. *Readers who wish further information on any of these subjects may examine the complete dissertations in the ASU Hayden Library.*

AN EMPIRICAL STUDY OF PERCEPTIONS OF THE FUTURE ENVIRONMENTS OF THE LODGING INDUSTRY

Dr. Charles E. "Chase" De Long

The purpose of the study was to secure and analyze expert opinion regarding the natural, social, legal, institutional, competitive, internal, economic, and technological environments in the future of the American hotel/motel industry. Two populations ascertained as having the best qualifications were the twenty-one chief administrators of baccalaureate and graduate programs of hotel administration in the United States and the key executives—presidents, chairmen of the board -- of the fifty-one major, domestic hotel/motel chains, or their duly appointed representative.

The total study ranged over six years and included the organization and presentation of an interdisciplinary panel that determined the first four of the environments used in the study. Once the remainder of the future environments was established, hypotheses were tested by using a pilot study, interviewing academicians and practitioners, and conducting a survey through the use of an original questionnaire.

A 100 percent response was attained from the academicians, and 84 percent of the 51 national chains responded. In addition to providing their predictions regarding the forty statements about the eight environments, many of the respondents gave additional commentary.

The findings of the study supported the hypotheses. Academicians and key executives of major hotel/motel chains were in general agreement about the future environments of the lodging industry.

The following specific conclusions were derived from the study:

1. The competitive environment will be marked by intensification, especially in the realm of technological advances.
2. The economic environment will see guests in the lodging industry increasing their use of credit twofold and the effects of inflation doubling the existing room rate in actual dollars.
3. Market segmentation and standardization of operations will result in increased efficiency in the internal environment.
4. Further amalgamation of lodging groups with transportation companies and the like are foreseen to occur in the institutional environment.
5. The future legal environment should tend toward the direction of greater amounts of legislation and more stringent governmental controls.
6. Key predictions in the natural environment appear to be the natural resources shortages and recycling of waste discharge.
7. Predicted to occur in the social environment are more team decision making and more diversity in lodging offerings.
8. Technological advances in reservations processing and guest check-ins will appreciably improve industry productivity.

Recommendations were advanced that academicians and theoreticians might follow up on any of the eight major areas as it or they affect their specialty; chain representatives should draw upon the results of the study to preserve a clearer view of the future potential of the industry; and, future researchers could explore other industries or expand into the international scale. Periodical replication should be of significant interest.

Charles E. "Chase" De Long is a faculty member in the Division of Business at the Hawaii Campus of Brigham Young University. The chairman of his dissertation committee was Dr. Gordon Inskeep, Professor of Management.

The Arizona Business Scene

1912

Employment Trends in Arizona

Nonagricultural employment in Arizona increased 77 percent during the 1970s. This increase in employment is more rapid than the 48 percent growth in population. This relatively greater increase in employment is largely attributable to two factors: first, a larger proportion of the Arizona population was of working age in 1979 than in 1970 as the "baby boom" matured; and second, a larger percentage of the working age population was employed in 1979 than in 1970 as more females joined the labor force.

The composition of the labor force also changed in Arizona during the 1970s. As shown in Table 1, construction was the fastest growing industry during the decade, followed by the service sector and wholesale and retail trade. Within the service sector, business services showed the greatest growth. Within the retail trade industry, eating and drinking places showed a very large increase in employment, while automotive/service stations had a relatively slow growth.

Sectors that grew least rapidly during the 1970s were the mining industry, federal government, and manufacturing. Despite the publicity given to large manufacturing units locating in Arizona in recent years, manufacturing, as measured by employment, has not gained in significance as compared to other industries. These employment growth patterns indicate that Arizona is maintaining its characterization as a service and trade related state that is becoming less dependent upon mining and government; the growth in construction employment is a reflection of the rapid overall growth that Arizona has undergone.

TABLE 1

NONAGRICULTURAL EMPLOYMENT BY SECTOR, ARIZONA

(In thousands)

	1970	*1979*	*Average Annual Percentage Change*
Manufacturing-Durable Goods	70.0	109.6	5.1
Manufacturing-Nondurable Goods	21.2	32.8	5.0
Mining and Quarrying	20.6	21.6	0.5
Construction	37.1	82.7	9.3
Transportation, Communication, and Public Utilities	30.0	48.4	5.5
Wholesale Trade	25.0	46.5	7.1
Retail Trade	102.0	187.9	7.0
Finance, Insurance, and Real Estate	30.5	54.5	6.7
Services and Miscellaneous	91.5	189.5	8.4
Federal Government	29.0	37.5	2.9
State and Local Government	90.5	159.9	6.6
Total	547.4	970.8	6.6

Source: Labor Market Information, Arizona Department of Economic Security.

The trends in Arizona employment are compared to the national trends in Table 2. Most of the trends in the United States and in Arizona are comparable. For example, relatively fewer people are employed in manufacturing now than in 1970 both in the United States and in Arizona. In comparison to the United States as a whole, Arizona has proportionately less employment in manufacturing, particularly in nondurable goods. Arizona has proportionately greater employment in retail trade and in government. It is interesting to note that federal government employment has grown less rapidly than employment as a whole, both in Arizona and in the United States. State and local government, consisting largely of school employees, has grown at about the average rate.

TABLE 2

NONAGRICULTURAL EMPLOYMENT BY INDUSTRY AS A PERCENTAGE OF TOTAL EMPLOYMENT, ARIZONA AND UNITED STATES

	1970		*1979*	
	Percentage		*Percentage*	
	Arizona	*U.S.*	*Arizona*	*U.S.*
Manufacturing-Durable Goods	12.8	15.9	11.3	14.2
Manufacturing-Nondurable Goods	3.9	11.6	3.4	9.3
Mining and Quarrying	3.8	0.9	2.2	1.1
Construction	6.8	4.7	8.5	5.2
Transportation, Communication, and Public Utilities	5.5	6.4	5.0	5.8
Wholesale Trade	4.6	5.4	4.8	5.8
Retail Trade	18.6	15.7	19.4	16.7
Finance, Insurance, and Real Estate	5.6	5.2	5.6	5.5
Services and Miscellaneous	16.7	16.5	19.5	19.0
Federal Government	5.3	3.8	3.9	3.1
State and Local Government	16.5	13.9	16.5	14.3
Total	100.0	100.0	100.0	100.0

Source: Compiled from Labor Market Information, Arizona Department of Economic Security, and the *Survey of Current Business*, U.S. Department of Commerce.

Most of the state's employment is in Maricopa County (63 percent), with the rest divided almost equally between Pima County and the other twelve counties. The composition of employment by county within Arizona varies substantially. The differences between the metropolitan counties of Pima and Maricopa and the twelve nonmetropolitan counties are illustrated in Table 3. Compared to the state as a whole, Maricopa County has relatively large employment in manufacturing, wholesale trade, and finance, insurance, and real estate. There is relatively less employment in government and almost no employment in mining. Maricopa County, by its employment, can be characterized as a business center of manufacturing, distribution, and professional services.

The composition of employment in Pima County is considerably different from that of Maricopa County and presents a mix between employment in Maricopa County and that of the other counties. Pima County has a relatively heavy concentration of employment in mining and government, but has relatively less employment in wholesale trade and in manufacturing, especially of nondurable goods. The twelve nonmetropolitan counties have relatively heavy employment in mining; transportation, communications, and public utilities; and government, with less than average employment in nearly all of the other economic sectors.

While the trend in Arizona's employment reflects rapid growth, some cycles are evident as employment is affected by economic conditions, as shown in Figure I. During the recession in the mid-1970s, employment

TABLE 3

NONAGRICULTURAL EMPLOYMENT BY INDUSTRY AS A PERCENTAGE OF TOTAL EMPLOYMENT, ARIZONA COUNTIES, 1979

	Maricopa Percentage	*Pima Percentage*	*Other Counties Percentage*
Manufacturing-Durable Goods	13.7	7.8	6.8
Manufacturing-Nondurable Goods	3.7	2.4	3.3
Mining and Quarrying	*	3.8	7.8
Construction	8.9	8.6	7.2
Transportation, Communication, and Public Utilities	4.7	5.0	5.8
Wholesale Trade	6.0	2.7	2.7
Retail Trade	19.6	19.9	18.1
Finance, Insurance, and Real Estate	6.9	4.6	2.5
Services and Miscellaneous	20.0	20.5	16.9
Government	16.5	24.5	29.0
Total	100.0	99.8	100.1

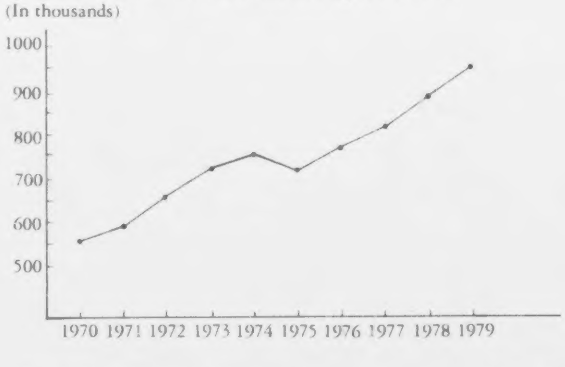
*Less than one-tenth of 1 percent.

Note: Totals may not equal 100.0 due to rounding.

Source: Compiled from Labor Market Information, Arizona Department of Economic Security.

FIGURE I

NONAGRICULTURAL EMPLOYMENT, ARIZONA ANNUAL AVERAGE, 1970-1979



Source: Labor Market Information, Arizona Department of Economic Security.

growth slowed considerably, and a decrease actually occurred in 1975. The economic cycle is repeating itself now, with the current recession holding employment growth to negligible levels. These economic cycles do not affect the various industries equally. The construction industry is affected the most, showing wide swings in employment. Construction employment may increase 20 to 30 percent in a boom year, but decline 25 percent in a recessionary year. In the current cycle, construction employment peaked in 1979 and has been declining since last fall, as the economy fell into a recession. In contrast to the contruction industry, the service industry is relatively immune to economic cycles. Government employment and mining employment also do not follow the economic cycle.

While this article has been concerned only with trends in nonagricultural employment, agriculture is also an important sector of the Arizona economy, especially in Yuma, Pinal, and Maricopa counties. Employment figures for this industry are difficult to determine, however, largely because of difficulties in measuring migrant labor. A current estimate of agricultural employment is about 25,000 workers.

An analysis of employment in Arizona is a good indicator of the character and condition of the state's economy. The character of Arizona employment did not change substantially in the 1970s, although mining and government employment became relatively less important. Arizona is still a trade and service oriented state with considerable construction activity. While the condition of Arizona employment is still sound, the current recession has temporarily slowed employment growth and has caused a decline in employment within the construction industry.

New Publication

THE ARIZONA FARM LABOR LAW: IN THE FIELDS AND IN THE COURTS

Harold C. White and William Gibney

The Arizona Agricultural Employment Relations Act was passed in May, 1972, amid much controversy. After several years of debate, the United States Supreme Court reversed a lower federal court and ruled that the Arizona Agricultural Employment Relations Act is indeed constitutional.

This monograph presents a review of the agricultural labor-management relations in the state of Arizona from the passage of the state act covering these relations until the ruling on the constitutionality of that act by the United States Supreme Court.

The purposes are to review the history of labor relations in Arizona agriculture over approximately a ten-year period; to identify the issues of labor relations that have been indicated by the parties; to identify those involved in the industrial relations issues; and to show the influence of legislation on the parties and issues.

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A Survey of Arizona Business Conditions

HAROLD FEARON

The recession appears to have bottomed out, and the early signs of an upturn are evident, according to results from the August monthly business survey of the Purchasing Management Association of Arizona. The July survey had shown that the declines on the key economic indicators were moderating, and in the August survey both the new order and production indicators turned positive after a downslide of several months. Further evidence shows that inflation is subsiding and likely will continue to moderate over the balance of the year.

The purchasing business survey has completed its eighteenth year of consecutive monthly reporting on the current status of the Arizona economy. Data are gathered through a questionnaire sent at the close of each month to purchasing managers throughout the state, asking them to indicate the direction of activity — higher, unchanged, or lower — on six key indicators of economic activity in the month just ended. Since these purchasing managers deal daily with the forces of supply and demand, they are in a prime position to provide timely and accurate information on current business trends; their data enable economic turning points to be spotted.

Prices paid for major purchased items went up again in August, but the net increase rate was somewhat less than in July and the smallest in any month over the past three and a half-years (since December, 1976). Forty-six percent of the purchasing managers paid higher prices in August than in July; forty-seven percent saw no change; and seven percent paid lower prices. While prices are still advancing, the rate of increase has declined in each month since January, showing that the inflation rate is subsiding. A continuation of this trend through the end of the year is likely and should provide the basis for a healthy economic upswing in the first quarter of 1981.

Delivery time on shipments from vendors stretched out slightly, reversing a three-month trend of faster shipments. Longer delivery times were reported by 24 percent of the firms, compared to 21 percent who received faster service from their vendors. Vendor order books are stabilizing, which is an early sign that the bottom of the recession has been reached and the Arizona economy is poised for the beginnings of an upswing.

Inventory levels of purchased materials dropped again, for the fifth consecutive month, although at a smaller rate than in July. Higher inventory was reported by 21 percent of the purchasing managers, while 34 percent cut stocks in August. The inventory reductions were not large in any of the past five months, and this orderly paring of stocks has been a primary factor in preventing the current business contraction from snowballing and in limiting its duration.

New orders received from customers went up in August, with 31 percent of the firms reporting an increase in order bookings and only 29 percent booking

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less new business in August than in July. Although this was only a small net increase, it reverses a four-month order downslide, which started in April with a large reduction in the new order rate. The declines on this indicator have become progressively smaller in each month, and it now appears that the stage is set for a resumption of growth in the Arizona economy.

Production of Arizona firms also turned up in August, following the past four months of declines. Twenty-seven percent of the firms increased production; twenty-five percent cut output. While the net increase, which follows the new order rate closely, was not large, it is significant that the trend of declining output has been reversed.

Employment fell again, for the fourth month in a row, with higher employment reported by only 21 percent of the firms, compared to the 23 percent who pared payrolls. The August decrease was marginal, and since employment additions normally lag a few months behind changes in new orders received and production, employment increases likely will begin in the next few months.

The overall results from the August monthly business survey are very positive and show that the Arizona economy is poised for an economic turnaround. The recession here has not been severe and it will have been a very short one. However, there is no assurance that the next few months will see a sharp upswing. This uncertainty probably will continue over the next few months until the effects of the copper labor interruptions smooth out and the political situation is clarified. It does appear, however, that the Arizona economy is about ready to close the books on the recession and again begin to enjoy another period of growth.

The results of the July and August surveys are shown in Tables 1 and 2.

TABLE 1
JULY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (July compared to June)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	48	45	7
Delivery time from vendors	23	49	28
Purchased materials inventory level	20	43	37
New orders received	26	37	37
Production	22	45	33
Employment	15	58	27

Source: Survey of the Purchasing Management Association of Arizona

TABLE 2
AUGUST PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (August compared to July)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	46	47	7
Delivery time from vendors	24	55	21
Purchased materials inventory level	21	45	34
New orders received	31	40	29
Production	27	48	25
Employment	21	56	23

Source: Survey of the Purchasing Management Association of Arizona

ARIZONA SALES OF ELECTRICAL POWER
By Months
(In millions of kwh)

	Actual		*Percent Change Current Month From*	
	1980	*1979*	*Same Month Previous Year*	*Previous Month*
June	2,878.9	2,739.8	5.1	23.1
July	3,313.6	3,153.2	5.1	15.1

Source: Based on reports from major suppliers

Arizona Construction Activity: Quarterly Report

JAY Q. BUTLER

SECOND QUARTER, 1980

Recent information indicates that the economy has stopped declining, causing many economists to foresee an end to the current recession. The primary question is, Will the recovery be vigorous (as previous recoveries have been) or will the recovery be a slow, sluggish process? The answer, however cannot be definitive because of the complex interaction of consumer activity and government policy. The current economic situation is very weak with depressed consumer confidence, a low savings rate, and no improvement in real income. The fear of continued inflation (in excess of 10 percent), due largely to increasing food prices and a weakening dollar, has made the Federal Reserve reluctant to ease credit further to provide an economic stimulus. Apparently a base for vigorous recovery does not currently exist.

Although Arizona has avoided the full impact of the national recession, the construction industry — especially homebuilding — has suffered a severe downturn. Total construction activity in Arizona for the second quarter of 1980 showed 20,155 permits valued at $507,025,820.

Maricopa County showed a 46 percent decrease in issued permits (18,509 to 10,083 permits) and a 29 percent decline in dollar value ($443,840,479 to $315,046,223) from the second quarter of 1979. For the rest of Arizona, the number of permits showed a 27 percent decrease (13,935 to 10,073 permits) and a 37 percent reduction in total dollar value ($302,700,857 to $191,979,597) from a year ago.

Much of the decline in construction activity occurred in the residential sector; commercial and industrial sectors continued to produce relatively strong levels of performance. Tables 1 and 2 present the levels of construction activity for the past six quarters.

Residential Sector

Maricopa County. This sector has continued to bear the main brunt of the slumping real estate market. The effect of the high interest rates was dramatically demonstrated with only 4,518 residential permits, valued at $79,844,790 recorded in Maricopa County during the second quarter of 1980. This level of activity represents a

TABLE 1

ARIZONA QUARTERLY HOUSING STARTS

	BUILDING PERMITS ISSUED				
	1 Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
1979					
FIRST QUARTER					
Maricopa County	7,228	17	58	186	10,650
Rest of State	4,481	49	27	16	5,100
Arizona Total	11,790	66	85	202	15,750
SECOND QUARTER					
Maricopa County	8,227	69	110	84	11,944
Rest of State	6,291	30	30	21	7,257
Arizona Total	14,518	99	140	105	19,201
THIRD QUARTER					
Maricopa County	5,019	40	48	177	9,389
Rest of State	5,341	46	34	39	7,621
Arizona Total	10,360	86	82	216	17,010
FOURTH QUARTER					
Maricopa County	3,654	48	54	71	6,256
Rest of State	4,220	39	26	32	5,560
Arizona Total	7,874	87	80	103	11,822
1980					
FIRST QUARTER					
Maricopa County	3,418	28	42	105	6,320
Rest of State	3,452	32	42	12	4,204
Arizona Total	6,870	60	84	117	10,524
SECOND QUARTER					
Maricopa County	2,234	54	86	77	4,729
Rest of State	3,395	38	25	21	4,128
Arizona Total	5,629	92	111	98	8,857

**Includes mobile homes.*

Source: Combined from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

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decrease of 57 percent in issued permits from the 10,593 permits valued at $245,886,557 (a 68 percent decrease in dollar value) over a year ago.

The single-family sector (including mobile homes) demonstrated a 73 percent decrease from a year ago (8,227 to 2,234 permits) and a 35 percent decline from the first quarter of 1979 (3,418 to 2,234 permits). Nevertheless, monthly single-family permit activity registered a recent upswing: April, 588 permits; May, 577 permits; and June, 1,069 permits. Although well below the activity levels of 1979, the increasing construction occurred in response to declining interest rates. In the second quarter of 1978 single-family permits represented 80 percent of the residential permits as compared to multifamily units, while in the second quarter of 1980 the relationship had declined to 50 percent. Because of the increasing cost of new homes and the recession, remodeling and other alteration permit activity has been increasing.

All Other Arizona Counties. While residential construction activity showed a severe decline in Maricopa County, activity in the rest of the state was fairly stable but still well below the levels achieved in 1979. The 6,590 residential permits issued in the second quarter represented a 39 percent decrease over a year ago (10,801 permits) but only a 2 percent decline from the first quarter of 1980 (6,694 permits). Single-family construction activity recorded a 46 percent decrease from a year ago (6,291 to 3,395 permits) while reporting only a 2 percent reduction from the activity of the first quarter of 1980 (3,492 to 3,395 permits).

In Pima County, single-family activity was down 57 percent (3,020 to 1,284 permits) over a year ago, but down only 1 percent from the initial quarter of 1980 (1,301 to 1,284 permits). Increasing single-family activity was evident in Yuma County with 308 permits representing a 13 percent increase over the 272 permits issued in the first quarter of 1980.

Commercial Sector

Maricopa County. The commercial sector continued to perform at reasonable levels. In Maricopa County the 738 commercial permits represented a 31 percent increase over the same period of last year (563 permits) and a 45 percent increase over the 510 permits issued in the first quarter of 1980. Although permits were issued for several major projects such as a $1.6 million apartment complex, an $8.1 million motel, and a $4.4 million office complex, most of the activity was for small apartment and office projects, ranging in value from $150,000 to $350,000. Apartment development (five or more units) continued at a strong pace with 77 issued permits (54 permits issued in June). However, increasing vacancy rates, due partially to overbuilding, are expected to force some decrease in apartment development.

TABLE 2

ARIZONA QUARTERLY BUILDING PERMIT ACTIVITY

		RESIDENTIAL		*COMMERCIAL*		*INDUSTRIAL*		*OTHER*		*TOTAL*	
		Number of Permits	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*
1979	FIRST QUARTER										
	Maricopa County	9,519	207,680,328	568	99,325,216	108	13,227,668	5,826	86,687,577	16,021	406,920,789
	Rest of State	8,350	126,721,479	313	33,557,067	32	40,806,011	2,348	23,441,380	11,043	224,525,937
	Arizona Total	17,869	334,401,807	881	132,882,283	140	54,033,679	8,174	110,128,957	27,064	631,446,726
	SECOND QUARTER										
	Maricopa County	10,593	245,886,557	563	107,706,741	114	31,598,095	7,239	58,649,086	18,509	443,840,479
	Rest of State	10,801	177,943,784	413	83,445,863	21	5,166,240	2,700	36,144,970	13,935	302,700,857
	Arizona Total	21,394	423,830,341	976	191,152,604	135	36,764,335	9,934	94,794,056	32,444	746,541,336
	THIRD QUARTER										
	Maricopa County	7,014	163,059,602	564	129,297,596	163	43,106,632	5,908	76,641,388	13,649	412,105,218
	Rest of State	9,030	154,644,619	363	70,701,363	27	3,631,771	2,945	28,231,341	12,365	257,209,094
	Arizona Total	16,044	317,704,221	927	199,998,959	190	46,738,403	8,853	104,872,729	26,014	669,314,312
	FOURTH QUARTER										
	Maricopa County	5,864	134,935,967	512	128,226,226	127	40,249,131	5,281	57,274,578	11,784	360,685,902
	Rest of State	7,408	118,051,966	411	73,966,907	9	658,963	2,109	20,254,659	9,937	212,932,495
	Arizona Total	13,272	252,987,933	923	202,193,133	136	40,908,094	7,390	77,529,236	21,721	573,618,397
1980	FIRST QUARTER										
	Maricopa County	6,173	120,797,718	510	123,606,604	149	42,596,153	5,575	60,706,632	12,407	347,707,107
	Rest of State	6,694	97,272,425	355	73,441,664	14	3,444,490	2,419	21,996,869	9,482	196,155,448
	Arizona Total	12,867	218,070,143	865	197,048,268	163	46,040,643	7,994	82,703,501	21,889	543,862,555
	SECOND QUARTER										
	Maricopa County	4,518	79,844,790	738	134,559,233	128	35,247,376	4,698	65,394,824	10,082	315,046,223
	Rest of State	6,590	103,542,039	390	56,573,166	25	5,313,236	3,068	26,551,156	10,073	191,979,597
	Arizona Total	11,108	183,386,829	1,128	191,132,399	153	40,560,612	7,766	91,945,980	20,155	507,025,820

Source: Compiled from data published in *Arizona Business*, Bureau of Business and Economic Research, College of Business Administration, Arizona State University.

All Other Arizona Counties. The remainder of Arizona reflected a comparable pattern with 390 permits issued, representing a 6 percent decline from a year ago (413 permits) but a 10 percent increase over the 355 permits issued in the first quarter of 1980. Although permit activity was fairly stable, dollar volume declined 32 percent from a year ago ($83,445,863 to $56,573,166) 22 percent from the first quarter ($73,441,664 to $56,573,166). Commercial development was especially evident in Pima County, where permits valued at over $14 million were issued for continued IBM development.

Industrial Sector

Maricopa County. Industrial development was again a very active sector, with the dominant area of activity in Maricopa County where 128 permits, valued at $35,247,376, were recorded. This represented a 12 percent increase in issued permits (114 permits) and a 12 percent increase in dollar value ($31,598,095) over a year ago. The main activity occurred in Phoenix (38 permits valued at $20,651,124) and Tempe (75 permits valued at $10,401,100).

All Other Arizona Counties. In the rest of the state, 25 permits worth $5,313,236 were issued, including a $1 million structure in Yuma County and a $1.5 million addition to Gates Learjet in Pima County. This activity was comparable to the 21 permits worth $5,166,240 issued in the second quarter of 1979. Continued industrial development is important throughout the state to provide a solid economic foundation to support the expected growth of Arizona.

LOOKING AHEAD

Beginning in June and continuing through July, new home construction began to improve in response to declining mortgage interest rates. However, interest rates in August began to increase with the FHA/VA interest rates going from 11½ percent to 12 percent, and conventional rates ranging from 12¼ percent to 12¾ percent. (The prime mortgage interest in California was raised from 12¾ percent to 13½ percent.) Interest rates are being raised in response to several factors: continuing inflation in excess of 10 percent, a rising prime interest rate, increasing interest rates on treasury bills, limited availability of funds at lending institutions, and increasing yield requirements in the secondary mortgage market. Although it is unlikely that mortgage interest rates have completed their decline, rates are expected to increase through the third quarter and then decrease to around 11½ or 12 percent in early 1981. Unless interest rates begin to decline again in 1980, the recent increase in home construction could be stopped completely.

Because homebuilding is a key element of the Arizona economy, its recovery will have a direct impact on the continued growth of Arizona in the coming years. The main problem area is, and will continue to be, the response of consumers to increasing interest rates. Affordability of homes will be a great challenge to home buyers who will be applying a greater proportion of their income to house payments due to increasing home prices and interest rates. A recent survey, conducted by the Bureau of Business and Economic Research and sponsored by Phoenix Magazine Publishing, Inc., showed that the majority of respondents would not accept interest rates above 12 percent nor use more than 30 percent of their household income for mortgage payments.

In order to provide the needed financing at affordable levels, several new mortgage instruments have been developed to replace the fixed-rate conventional mortgage. Some financing concepts, such as the variable rate mortgage and the rollover mortgage (renegotiated rate mortgage) will have interest rates that vary within certain limits over the life of the mortgage. These mortgages are designed to protect lenders against inflation. Other mortgage instruments such as graduated payment mortgages and pledged account mortgages have fixed interest rates, but with payments that gradually increase at predetermined rates. These mortgages are attractive to consumers because initial-year housing costs are lower. The assumption is that owners' incomes will rise so that they can gradually absorb the rising mortgage payments. As these and other mortgage instruments are developed, the consumer and lending institutions will encounter increasing complexity in financing the home purchase.

The homebuilding industry in Arizona will be confronting many challenges, such as inflation, increasing housing costs (prices and interest rates), smaller households, and changing social norms (the greying of America and working spouses).

The overall uncertainties concerning economic activity, especially about the level of interest rates, suggest that real estate market activity could be very inconsistent with no definitive trend discernible until the end of 1980 or even early 1981. Unless economic conditions improve, the expected construction recovery could be sluggish through most of 1981.

Arizona New Housing Starts: Quarterly Report

SECOND QUARTER, 1980

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	36	—	—	—	36
Eagar	6	—	—	—	6
St. Johns	11	—	—	—	11
Springerville	1	—	—	—	1
Uninc. Apache Co.	18	—	—	—	18
COCHISE COUNTY	153	—	—	—	153
Benson	6	—	—	—	6
Bisbee	1	—	—	—	1
Douglas	10	—	—	—	10
Huachuca City	2	—	—	—	2
Sierra Vista	36	—	—	—	36
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	85	—	—	—	85
Willcox	12	—	—	—	12
COCONINO COUNTY	263	2	—	—	267
Flagstaff	56	2	—	—	60
Fredonia	7	—	—	—	7
Page	36	—	—	—	36
Uninc. Coconino Co.	163	—	—	—	163
Williams	1	—	—	—	1
GILA COUNTY	156	1	1	—	161
Globe	4	—	1	—	7
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	62	1	—	—	64
Uninc. Gila Co.	90	—	—	—	90
GRAHAM COUNTY	64	—	—	—	64
Pima	6	—	—	—	6
Safford	10	—	—	—	10
Thatcher	8	—	—	—	8
Uninc. Graham Co.	40	—	—	—	40
GREENLEE COUNTY	4	—	—	—	4
Clifton	3	—	—	—	3
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	1	—	—	—	1
MARICOPA COUNTY	2,234	54	86	77	4,729
Avondale	15	—	1	—	19
Buckeye	2	—	—	—	2
Chandler	137	1	6	—	162
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	25	—	—	—	25
Glendale	114	2	6	5	173
Goodyear	—	—	—	—	—
Guadalupe	2	—	—	—	2
Mesa	229	8	8	7	1,137
Paradise Valley	19	—	—	—	19
Peoria	27	—	—	—	27
Phoenix	589	8	10	18	1,412
Scottsdale	147	13	15	12	315
Surprise	2	—	—	—	2
Tempe	118	21	31	28	611
Tolleson	2	—	—	—	2
Uninc. Maricopa Co.	731	1	[illegible]	7	816
Wickenburg	4	—	—	—	4
Youngtown	1	—	—	—	1
MOHAVE COUNTY	411	—	3	3	438
Kingman City	15	—	—	—	15
Kingman Area	61	—	—	—	61
Lake Havasu City	122	—	1	1	131
Lake Havasu Area	22	—	—	—	22
Mohave Valley North	68	—	2	2	86
Mohave Valley South	73	—	—	—	73
Dolan Springs	22	—	—	—	22
Sacramento Valley	21	—	—	—	21
Mohave Co. General	7	—	—	—	7
NAVAJO COUNTY	206	—	1	—	210
Holbrook	3	—	1	—	7
Show Low	23	—	—	—	23
Snowflake	7	—	—	—	7
Taylor	5	—	—	—	5
Uninc. Navajo Co.	159	—	—	—	159
Winslow	9	—	—	—	9
PIMA COUNTY	1,284	28	16	12	1,914
Marana	—	—	—	—	—
Oro Valley	1	—	—	—	1
South Tucson	2	—	—	—	2
Tucson	320	25	16	10	598
Uninc. Pima Co.	961	3	—	2	1,313
PINAL COUNTY	139	2	2	—	147
Casa Grande	20	—	—	—	20
Coolidge	4	—	—	—	4
Eloy	1	—	—	—	1
Florence	2	2	—	—	6
Kearny	2	—	—	—	2
Mammoth	1	—	—	—	1
Superior	—	—	—	—	—
Uninc. Pinal Co.	109	—	2	—	113
SANTA CRUZ COUNTY	25	—	—	—	25
Nogales	—	—	—	—	—
Patagonia	1	—	—	—	1
Uninc. Santa Cruz Co.	24	[illegible]	—	—	24
YAVAPAI COUNTY	[illegible]	[illegible]	—	5	386
Chino Valley	16	—	—	—	16
Clarkdale	3	[illegible]	—	—	3
Cottonwood	18	[illegible]	—	—	18
Jerome	—	—	—	—	—
Prescott	35	2	—	3	44
Uninc. Yavapai Co.	274	3	—	2	305
YUMA COUNTY	308	—	2	1	323
Parker	4	—	—	—	4
Somerton	7	—	—	—	7
Uninc. Yuma Co.	223	—	—	1	231
Wellton	1	—	—	—	1
Yuma	73	—	2	—	80
TOTAL, Maricopa Co., Second Quarter 1980	2,234	54	86	77	4,729
TOTAL, Maricopa Co., Second Quarter 1979	8,227	69	110	84	11,944
PERCENT CHANGE	-73	-22	-22	-8	-60
TOTAL, Arizona, Second Quarter, 1980	5,629	92	111	98	8,857
TOTAL, Arizona, Second Quarter, 1979	14,518	99	140	105	19,201
PERCENT CHANGE	-61	-7	-21	-7	-54

*Includes mobile homes.

Arizona Building Permits: Quarterly Report

SECOND QUARTER, 1980 CENSUS DIVISION'	RESIDENTIAL* Number of Permits	RESIDENTIAL* Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permit	TOTAL Dollar Value
APACHE COUNTY	37	714,150	4	46,390	—	—	3	13,300	44	773,840
Eagar	7	308,000	—	—	—	—	—	—	7	308,000
St. Johns	10	—	—	—	—	—	—	—	10	—
Springerville	1	—	—	—	—	—	—	—	1	—
Uninc. Apache County	19	406,150	4	46,390	—	—	3	13,300	26	465,840
COCHISE COUNTY	286	5,408,804	9	579,000	2	11,078	359	966,960	656	6,965,842
Benson	12	80,900	1	16,000	—	—	17	11,790	30	108,690
Bisbee	38	91,817	3	61,500	—	—	22	14,247	63	167,564
Douglas	25	986,706	—	—	—	—	64	198,573	89	1,185,279
Huachuca City	12	72,412	—	—	1	6,078	—	—	13	78,490
Sierra Vista	57	1,300,724	3	483,000	—	—	198	445,299	258	2,229,023
Tombstone	2	3,000	—	—	—	—	5	4,800	7	7,800
Uninc. Cochise Co.	112	2,545,560	1	13,000	—	—	43	230,251	156	2,788,811
Willcox	28	327,685	1	5,500	1	5,000	10	62,000	40	400,185
COCONINO COUNTY	515	10,548,720	18	888,081	—	—	122	1,123,768	655	12,560,569
Flagstaff	124	4,070,073	15	832,180	—	—	75	931,662	214	5,833,915
Fredonia	10	172,308	—	—	—	—	1	500	11	172,808
Page	66	835,650	—	—	—	—	15	—	81	835,650
Uninc. Coconino Co.	311	5,422,442	3	55,901	—	—	13	171,785	327	5,650,128
Williams	4	48,247	—	—	—	—	18	19,821	22	68,068
GILA COUNTY	266	3,530,624	9	865,932	2	233,600	82	2,973,958	359	7,604,114
Globe	15	107,900	2	85,000	1	200,000	10	17,200	28	410,000
Hayden	7	26,488	—	—	—	—	2	500	9	26,988
Miami	9	8,900	—	—	—	—	1	2,000	10	10,900
Payson	95	698,328	3	72,432	1	33,600	50	126,841	149	931,201
Uninc. Gila Co.	140	2,689,008	4	708,500	—	—	19	2,827,417	163	6,224,925
GRAHAM COUNTY	129	1,718,094	8	111,282	2	149,000	25	44,175	164	2,022,551
Pima	8	136,800	—	—	—	—	—	—	8	136,800
Safford	47	382,875	8	111,282	2	149,000	12	25,625	69	666,782
Thatcher	13	429,700	—	—	—	—	13	20,550	26	450,250
Uninc. Graham Co.	61	768,719	—	—	—	—	—	—	61	768,719
GREENLEE COUNTY	6	102,310	—	—	—	—	2	1,100	8	103,410
Clifton	3	60,000	—	—	—	—	—	—	3	60,000
Duncan	1	500	—	—	—	—	1	500	2	1,000
Uninc. Greenlee Co.	2	41,810	—	—	—	—	1	600	3	42,410
MARICOPA COUNTY	4,518	79,844,790	738	134,559,233	128	35,247,376	4,698	65,394,824	10,082	315,046,223
Avondale	15	168,554	3	35,680	—	—	43	774,034	61	978,268
Buckeye	21	111,320	—	—	1	200,000	3	4,400	25	315,720
Chandler	230	3,828,829	22	1,127,943	2	352,000	289	2,596,693	543	7,905,465
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	—	—	—	—	—	—	—	—	—	—
Gilbert	50	1,054,466	—	—	1	50,000	102	230,596	153	1,335,262
Glendale	225	4,502,680	41	2,823,800	—	—	515	1,712,847	781	9,039,327
Goodyear	—	—	5	1,993,663	—	—	42	75,153	47	2,068,816
Guadalupe	3	15,200	—	—	—	—	2	—	5	15,200
Mesa	406	6,030,369	83	21,602,480	7	2,868,000	817	18,394,522	1,313	48,895,371
Paradise Valley	78	2,866,334	—	—	—	—	63	476,653	141	3,342,987
Peoria	84	741,212	3	28,000	2	50,152	47	255,347	136	1,074,711
Phoenix	1,455	31,011,686	332	71,672,747	38	20,651,124	1,486	33,018,787	3,311	156,354,344
Scottsdale	324	8,929,961	56	11,753,203	—	—	622	4,130,690	1,002	24,813,854
Surprise	12	46,750	2	48,000	—	—	21	16,733	35	111,483
Tempe	370	5,017,000	115	13,736,500	75	10,401,100	149	1,379,800	709	30,534,400
Tolleson	19	89,338	—	—	—	—	12	17,597	31	106,935
Uninc. Maricopa Co.	1,151	15,186,123	75	9,734,217	2	675,000	468	1,937,103	1,696	27,532,443
Wickenburg	6	98,450	1	3,000	—	—	3	252,600	10	354,050
Youngtown	69	146,318	—	—	—	—	14	121,269	83	267,587

Arizona Building Permits: Quarterly Report (Continued)

SECOND QUARTER, 1980 *CENSUS DIVISION*	*RESIDENTIAL** *Number of Permits*	*RESIDENTIAL** *Dollar Value*	*COMMERCIAL* *Number of Permits*	*COMMERCIAL* *Dollar Value*	*INDUSTRIAL* *Number of Permits*	*INDUSTRIAL* *Dollar Value*	*OTHER* *Number of Permits*	*OTHER* *Dollar Value*	*TOTAL* *Number of Permit*	*TOTAL* *Dollar Value*
MOHAVE COUNTY	1,051	12,905,302	64	4,177,291	—	—	592	1,225,984	1,707	18,308,577
Kingman City	64	1,010,950	4	95,700	—	—	19	26,951	87	1,133,601
Kingman Area	167	1,687,625	5	513,048	—	—	110	111,059	282	2,311,732
Lake Havasu City	168	4,537,404	15	868,330	—	—	78	502,354	261	5,908,088
Lake Havasu Area	37	356,092	—	—	—	—	24	45,574	61	401,666
Mohave Valley North	357	2,853,539	24	1,763,685	—	—	218	305,288	599	4,922,512
Mohave Valley South	166	1,536,862	12	761,856	—	—	85	119,026	263	2,417,744
Dolan Springs	47	431,690	3	54,672	—	—	29	35,122	79	521,484
Sacramento Valley	35	348,208	1	120,000	—	—	21	23,266	57	491,474
Mohave County General	10	142,932	—	—	—	—	8	57,344	18	200,276
NAVAJO COUNTY	272	4,851,827	29	523,481	6	39,584	28	519,307	335	5,934,199
Holbrook	9	91,500	1	140,000	—	—	5	298,900	15	530,400
Show Low	42	408,113	2	72,300	—	—	3	—	47	480,413
Snowflake	5	—	—	—	—	—	2	—	7	—
Taylor	10	227,000	—	—	—	—	—	—	10	227,000
Unic. Navajo Co.	183	3,773,864	24	300,681	6	39,584	14	114,723	227	4,228,852
Winslow	23	351,350	2	10,500	—	—	4	105,684	29	467,534
PIMA COUNTY	2,643	46,723,667	198	43,255,249	4	2,438,546	1,322	12,819,761	4,167	99,237,233
Marana	—	—	—	—	—	—	2	—	2	—
Oro Valley	2	81,000	1	2,500	—	—	6	713,939	9	797,439
South Tucson	7	124,268	8	16,400	1	2,546	3	—	19	143,214
Tucson	854	10.708,513	137	8,398,294	2	1,516,000	713	8,159,126	1,706	28,781,933
Uninc. Pima Co.	1,780	29,809,886	52	34,838,055	1	920,000	598	3,946,696	2,431	69,514,637
PINAL COUNTY	293	2,685,085	10	202,162	2	345,000	161	1,540,401	466	4,772,648
Casa Grande	49	526,983	1	55,000	2	345,000	36	409,029	88	1,336,012
Coolidge	32	57,856	—	—	—	—	8	45,220	40	103,076
Eloy	10	23,320	1	2,500	—	—	14	39,285	25	65,105
Florence	3	65,000	—	—	—	—	14	14,787	17	79,787
Kearny	4	56,500	2	41,000	—	—	1	700	7	98,200
Mammoth	3	29,300	—	—	—	—	—	—	3	29,300
Superior	1	1,000	—	—	—	—	1	250	2	1,250
Uninc. Pinal Co.	191	1,925,126	6	103,662	—	—	87	1,031,130	284	3,059,918
SANTA CRUZ COUNTY	32	1,392,651	—	—	—	—	4	2,300	36	1,394,951
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	1	4,000	—	—	—	—	—	—	1	4,000
Uninc. Santa Cruz Co.	31	1,388,651	—	—	—	—	4	2,300	35	1,390,951
YAVAPAI COUNTY	592	11,277,091	26	3,590,984	4	565,720	239	3,504,045	861	18,937,840
Chino Valley	27	493,130	—	—	—	—	9	15,608	36	508,738
Clarkdale	8	195,700	—	—	—	—	—	—	8	195,700
Cottonwood	50	471,769	10	617,500	—	—	11	113,309	71	1,202,578
Jerome	—	—	—	—	—	—	—	—	—	—
Prescott	92	1,291,493	7	1,365,384	3	515,720	123	276,511	225	3,449,108
Uninc. Yavapai Co.	415	8,824,999	9	1,608,100	1	50,000	96	3,098,617	521	13,581,716
YUMA COUNTY	468	7,683,714	15	2,333,314	3	1,530,708	129	1,816,097	615	13,363,833
Parker	5	110,500	—	—	—	—	14	590,181	19	700,681
Somerton	17	134,640	1	13,500	—	—	8	7,620	26	155,760
Uninc. Yuma Co.	302	4,645,516	6	554,096	1	30,000	36	458,960	345	5,688,572
Wellton	1	36,200	—	—	—	—	1	1,000	2	37,200
Yuma	143	2,756,858	8	1,765,718	2	1,500,708	70	758,336	223	6,781,620
TOTAL Maricopa County, Second Quarter, 1980	4,518	79,844,790	738	134,559,233	128	35,247,376	4,698	65,394,824	10.082	315,046,223
TOTAL Maricopa County, Second Quarter, 1979	10,593	245,886,557	563	107,706,741	114	31,598,095	7,239	58,649,086	18.509	443,840,479
PERCENT CHANGE	-57	-68	31	25	12	12	-35	12	-46	-29
TOTAL Arizona, Second Quarter, 1980	11,108	183,386,829	1,128	191,132,399	153	40,560,612	7,766	91,945,980	20,155	507,025,820
TOTAL Arizona, Second Quarter, 1979	21,394	423,830,341	976	191,152,604	135	36,764,335	9,939	94,794,056	32,444	746,541,336
PERCENT CHANGE	-48	-57	16	-0	13	10	-22	-3	-38	-32

N/R: No report; data for this month will be combined with data reported for the following month

*Includes mobile homes

JUNE, 1980

Arizona Building Permits: Monthly Report

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
CENSUS DIVISION	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permit	Dollar Value
APACHE COUNTY	13	221,150	—	—	—	—	1	4,500	14	225,650
Eagar	2	85,000	—	—	—	—	—	—	2	85,000
St Johns	4	—	—	—	—	—	—	—	4	—
Springerville	1	—	—	—	—	—	—	—	1	—
Uninc. Apache County	6	136,150	—	—	—	—	1	4,500	7	140,650
COCHISE COUNTY	110	2,410,692	3	101,500	1	5,000	108	395,930	222	2,913,122
Benson	4	23,500	—	—	—	—	6	2,465	10	25,965
Bisbee	8	11,950	—	—	—	—	9	5,022	17	16,972
Douglas	3	104,000	—	—	—	—	21	112,834	24	216,834
Huachuca City	5	67,660	—	—	—	—	—	—	5	67,660
Sierra Vista	33	853,550	1	83,000	—	—	57	109,792	91	1,046,342
Tombstone	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Uninc. Cochise Co.	44	1,148,017	1	13,000	—	—	13	103,817	58	1,264,834
Willcox	13	202,015	1	5,500	1	5,000	2	62,000	17	274,515
COCONINO COUNTY	253	5,658,663	4	422,328	—	—	39	662,408	296	6,743,399
Flagstaff	70	2,526,541	3	404,790	—	—	17	615,225	90	3,546,556
Fredonia	4	89,308	—	—	—	—	1	500	5	89,808
Page	26	143,240	—	—	—	—	9	—	35	143,240
Uninc. Coconino Co.	151	2,898,824	1	17,538	—	—	6	45,033	158	2,961,395
Williams	2	750	—	—	—	—	6	1,650	8	2,400
GILA COUNTY	107	1,625,786	—	—	—	—	26	62,560	133	1,688,346
Globe	7	17,800	—	—	—	—	4	3,600	11	21,400
Hayden	6	25,988	—	—	—	—	—	—	6	25,988
Miami	2	2,100	—	—	—	—	—	—	2	2,100
Payson	40	308,098	—	—	—	—	18	20,860	58	328,958
Uninc. Gila Co.	52	1,271,800	—	—	—	—	4	38,100	56	1,309,900
GRAHAM COUNTY	50	659,163	2	30,400	2	149,000	18	39,250	72	877,813
Pima	2	24,000	—	—	—	—	—	—	2	24,000
Safford	18	177,700	2	30,400	2	149,000	5	18,700	27	375,800
Thatcher	4	267,000	—	—	—	—	13	20,550	17	287,550
Uninc. Graham Co.	26	190,463	—	—	—	—	—	—	26	190,463
GREENLEE COUNTY	2	500	—	—	—	—	—	—	2	500
Clifton	1	—	—	—	—	—	—	—	1	—
Duncan	1	500	—	—	—	—	—	—	1	500
Uninc. Greenlee Co.	—	—	—	—	—	—	—	—	—	—
MARICOPA COUNTY	1,894	37,377,794	297	46,149,846	55	9,412,782	1,511	36,300,766	3,757	129,241,188
Avondale	—	—	—	—	—	—	17	108,400	17	108,400
Buckeye	8	5,605	—	—	—	—	1	50	9	5,655
Chandler	114	2,717,585	8	715,815	—	—	125	1,651,369	247	5,084,769
El Mirage	—	—	—	—	—	—	—	—	—	—
Gila Bend	—	—	—	—	—	—	—	—	—	—
Gilbert	28	730,766	—	—	—	—	33	68,860	61	799,626
Glendale	104	1,973,200	7	391,000	—	—	171	399,297	282	2,763,497
Goodyear	—	—	1	17,035	—	—	15	35,040	16	52,075
Guadalupe	—	—	—	—	—	—	2	—	2	—
Mesa	199	3,101,239	33	9,208,700	1	362,000	248	10,036,954	481	22,708,893
Paradise Valley	47	2,084,428	—	—	—	—	15	101,890	62	2,186,318
Peoria	13	160,101	1	9,000	1	10,152	10	62,332	25	241,585
Phoenix	587	15,582,724	143	22,746,957	17	2,539,330	467	20,962,697	1,214	61,831,708
Scottsdale	167	4,260,193	29	4,951,790	—	—	235	1,785,161	431	10,997,144
Surprise	5	3,900	2	48,000	—	—	4	3,900	11	55,800
Tempe	111	1,694,500	40	5,022,700	54	5,826,300	51	480,400	236	13,023,900
Tolleson	4	41,600	—	—	—	—	3	700	7	42,300
Uninc. Maricopa Co.	486	4,890,695	33	3,038,849	2	675,000	111	594,557	632	9,199,101
Wickenburg	1	31,000	—	—	—	—	—	—	1	31,000
Youngtown	20	100,258	—	—	—	—	3	9,159	23	109,417

Arizona Building Permits: Monthly Report (Continued)

JUNE, 1980	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
CENSUS DIVISION	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permits	Dollar Value	Number of Permit	Dollar Value
MOHAVE COUNTY	266	37,449,42	19	624,009	—	—	261	515,450	546	4,884,401
Kingman City	14	315,922	2	54,400	—	—	6	18,290	22	388,612
Kingman Area	42	396,128	1	5,760	—	—	53	59,816	96	461,704
Lake Havasu City	48	1,375,577	4	168,148	—	—	30	179,221	82	1,722,946
Lake Havasu Area	8	81,528	—	—	—	—	6	23,728	14	105,256
Mohave Valley North	77	793,044	9	275,221	—	—	100	141,363	186	1,209,628
Mohave Valley South	40	438,141	2	93,600	—	—	36	57,072	78	588,813
Dolan Springs	24	207,824	1	26,880	—	—	18	22,942	43	257,646
Sacramento Valley	9	70,818	—	—	—	—	9	9,618	18	80,436
Mohave County General	4	65,960	—	—	—	—	3	3,400	7	69,360
NAVAJO COUNTY	106	1,883,450	5	260,000	—	—	2	9,684	113	2,153,134
Holbrook	2	12,500	1	140,000	—	—	—	—	3	152,500
Show Low	18	180,298	—	—	—	—	—	—	18	180,298
Snowflake	1	—	—	—	—	—	—	—	1	—
Taylor	3	101,000	—	—	—	—	—	—	3	101,009
Uninc. Navajo Co.	77	1,566,652	4	120,000	—	—	—	—	81	1,686,652
Winslow	5	23,000	—	—	—	—	2	9,684	7	32,684
PIMA COUNTY	796	18,584,738	43	28,856,037	2	1,503,546	498	3,861,805	1,339	52,805.126
Marana	—	—	—	—	—	—	—	—	—	—
Oro Valley	2	81,000	—	—	—	—	3	61,089	5	142,089
South Tucson	1	8,000	—	—	1	2,546	—	—	2	10,546
Tucson	288	4,546,226	14	2,238,100	1	1,500,000	225	2,197,760	528	10,482,086
Uninc. Pima Co.	505	13,949,512	29	26,617,937	—	—	270	1,602,956	804	42,170,405
PINAL COUNTY	113	839,350	3	61,000	1	300,000	59	974,669	176	2,175,019
Casa Grande	28	260,671	—	—	1	300,000	18	110,404	47	671,075
Coolidge	10	30,584	—	—	—	—	4	26,720	14	57,304
Eloy	9	11,320	—	—	—	—	2	8,495	11	19,815
Florence	—	—	—	—	—	—	6	4,900	6	4,900
Kearny	1	6,000	2	41,000	—	—	—	—	3	47,000
Mammoth	1	24,500	—	—	—	—	—	—	1	24,500
Superior	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Uninc. Pinal Co.	64	506,275	1	20,000	—	—	29	824,150	94	1,350,425
SANTA CRUZ COUNTY	12	450,114	—	—	—	—	—	—	12	450,114
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—	—	—	—	—	—
Uninc. Santa Cruz Co.	12	450,114	—	—	—	—	—	—	12	450,114
YAVAPAI COUNTY	212	4,113,486	6	1,983,580	2	485,000	106	3,305,158	326	9,887,224
Chino Valley	14	222,500	—	—	—	—	5	12,108	19	234,608
Clarkdale	3	37,500	—	—	—	—	—	—	3	37,500
Cottonwood	18	259,073	1	10,000	—	—	5	103,459	24	372,532
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	45	593,820	2	785,080	2	485,000	63	213,012	112	2,076,912
Uninc. Yavapai Co.	132	3,000,593	3	1,188,500	—	—	33	2,976,579	168	7,165,672
YUMA COUNTY	117	1,927,673	3	1,183,076	1	30,000	49	439,187	170	3,579,936
Parker	2	70,000	—	—	—	—	4	23,897	6	93,897
Somerton	6	37,120	1	13,500	—	—	6	7,320	13	57,940
Uninc. Yuma Co.	72	1,144,989	—	—	1	30,000	16	132,634	89	1,307,623
Wellton	1	36,200	—	—	—	—	—	—	1	36,200
Yuma	36	639,364	2	1,169,576	—	—	23	275,336	61	2,084,276
TOTAL Maricopa County, June, 1980	1,894	37,377,794	297	46,149,846	55	9,412,782	1,511	36,300,766	3,757	129,241,188
TOTAL Maricopa County, June, 1979	3,134	74,830,730	240	37,650,809	39	10,098,400	2,323	19,356,666	5,736	141,936,605
PERCENT CHANGE	-40	-50	24	23	41	-7	-35	88	-35	-9
TOTAL Arizona, June, 1980	4,051	79,497,501	385	79,671,776	64	11,884,328	2,678	46,571,367	7,178	217,624,972
TOTAL Arizona, June, 1979	6,574	132,693,762	386	66,419,587	45	11,020,840	3,177	26,711,670	10,182	236,845,859
PERCENT CHANGE	-38	-40	-0	20	42	8	-16	74	-30	-8

N/R: No report; data for this month will be combined with data reported for the following month.
*Includes mobile homes.

JULY, 1980

Arizona Building Permits: Monthly Report

	RESIDENTIAL*		COMMERCIAL		INDUSTRIAL		OTHER		TOTAL	
CENSUS DIVISION	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permits*	*Dollar Value*	*Number of Permit*	*Dollar Value*
APACHE COUNTY	18	393,500	—	—	—	—	—	—	18	393,500
Eagar	4	152,000	—	—	—	—	—	—	4	152,000
St Johns	4	N/C	—	—	—	—	—	—	4	N/C
Springerville	2	N/C	—	—	—	—	—	—	2	N/C
Uninc Apache Co	8	241,500	—	—	—	—	—	—	8	241,500
COCHISE COUNTY	124	3,013,492	6	708,057	—	—	140	337,950	270	4,059,499
Benson	4	110,070	—	—	—	—	5	25,700	9	135,770
Bisbee	—	—	—	—	—	—	23	28,031	23	28,031
Douglas	7	254,168	1	632,400	—	—	17	24,420	25	910,988
Huachuca City	9	97,644	1	10,000	—	—	3	21,200	13	128,844
Sierra Vista	50	1,144,640	2	16,657	—	—	71	83,957	123	1,245,254
Tombstone	2	2,050	—	—	—	—	3	2,240	5	4,290
Uninc Cochise Co	48	1,348,920	—	—	—	—	17	151,402	65	1,500,322
Willcox	4	56,000	2	49,000	—	—	1	1,000	7	106,000
COCONINO COUNTY	240	3,640,766	12	2,182,123	—	—	28	21,290,328	280	27,113,217
Flagstaff	68	1,361,457	8	747,800	—	—	12	21,229,160	88	23,338,417
Fredonia	4	—	—	—	—	—	—	—	4	—
Page	16	68,840	—	—	—	—	2	14,000	18	82,840
Uninc Coconino Co	151	2,208,485	4	1,434,323	—	—	3	41,292	158	3,684,100
Williams	1	1,984	—	—	—	—	11	5,876	12	7,860
GILA COUNTY	81	896,597	4	47,880	—	—	15	49,240	100	993,717
Globe	7	112,800	—	—	—	—	2	30,500	9	143,300
Hayden	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Miami	2	4,500	—	—	—	—	—	—	2	4,500
Payson	38	250,449	3	45,380	—	—	8	12,840	49	308,669
Uninc Gila Co	34	528,848	1	2,500	—	—	5	5,900	40	537,248
GRAHAM COUNTY	42	573,807	2	195,000	1	7,000	3	202,500	48	978,307
Pima	2	57,100	—	—	—	—	—	—	2	57,100
Safford	10	149,325	1	45,000	1	7,000	1	2,500	13	203,825
Thatcher	10	137,200	—	—	—	—	—	—	10	137,200
Uninc Graham Co	20	230,182	1	150,000	—	—	2	200,000	23	580,182
GREENLEE COUNTY	2	7,000	—	—	1	10,000	—	—	3	17,000
Clifton	1	—	—	—	—	—	—	—	1	—
Duncan	1	7,000	—	—	1	10,000	—	—	2	17,000
Uninc Greenlee Co	—	—	—	—	—	—	—	—	—	—
MARICOPA COUNTY	2,493	67,834,986	143	28,868,185	43	16,153,267	1,994	27,408,182	4,673	140,264,620
Avondale	—	—	1	1,000	—	—	15	26,500	16	27,500
Buckeye	1	6,000	—	—	—	—	4	3,630	5	9,630
Chandler	228	6,326,720	1	50,000	3	1,427,169	260	2,728,373	492	10,532,262
El Mirage	2	3,500	—	—	—	—	—	—	2	3,500
Gila Bend	—	—	—	—	—	—	—	—	—	—
Gilbert	20	700,630	—	—	—	—	30	97,522	50	798,152
Glendale	144	4,242,205	15	1,168,700	—	—	264	774,589	423	6,185,494
Goodyear	—	—	—	—	—	—	9	37,190	9	37,190
Guadalupe	1	—	—	—	—	—	—	—	1	—
Mesa	274	5,009,445	43	5,624,178	1	1,200,000	294	3,765,103	612	15,598,726
Paradise Valley	45	1,581,203	—	—	—	—	11	121,200	56	1,702,403
Peoria	52	1,045,819	2	148,000	1	5,970	26	253,452	81	1,453,241
Phoenix	944	30,205,447	39	15,662,748	12	4,738,028	636	14,523,247	1,631	65,129,470
Scottsdale	108	4,644,043	16	4,745,064	—	—	191	1,369,618	315	10,758,725
Surprise	1	9,000	1	72,000	—	—	6	18,550	8	99,550
Tempe	135	5,399,100	11	204,100	26	8,782,100	125	1,676,300	297	14,061,600
Tolleson	—	—	1	200	—	—	7	18,575	8	18,775
Uninc Maricopa Co	519	10,472,934	13	1,192,195	—	—	113	1,991,433	645	13,656,562
Wickenburg	5	167,200	—	—	—	—	—	—	5	167,200
Youngtown	14	21,740	—	—	—	—	3	2,900	17	24,640

Arizona Building Permits: Monthly Report (Continued)

JULY, 1980 CENSUS DIVISION	RESIDENTIAL* Number of Permits	RESIDENTIAL* Dollar Value	COMMERCIAL Number of Permits	COMMERCIAL Dollar Value	INDUSTRIAL Number of Permits	INDUSTRIAL Dollar Value	OTHER Number of Permits	OTHER Dollar Value	TOTAL Number of Permit	TOTAL Dollar Value
MOHAVE COUNTY	266	4,023,704	25	1,311,869	—	—	217	606,428	508	5,942,001
Kingman City	19	492,660	3	102,000	—	—	3	6,075	25	600,735
Kingman Area	57	486,598	4	164,832	—	—	55	46,431	116	697,861
Lake Havasu City	53	1,563,885	6	765,477	—	—	22	138,420	81	2,467,782
Lake Havasu Area	8	85,940	—	—	—	—	13	21,898	21	107,838
Mohave Valley North	68	712,160	9	209,888	—	—	68	259,574	145	1,181,622
Mohave Valley South	33	393,177	3	69,672	—	—	32	105,522	68	568,371
Dolan Springs	14	132,133	—	—	—	—	22	24,298	36	156,431
Sacramento Valley	6	63,459	—	—	—	—	2	4,210	8	67,669
Mohave County General	8	93,692	—	—	—	—	—	—	8	93,692
NAVAJO COUNTY	162	2,503,968	8	762,785	—	—	14	92,568	184	3,359,321
Holbrook	6	21,800	—	—	—	—	2	15,000	8	36,800
Show Low	11	136,612	—	—	—	—	1	57,668	12	194,280
Snowflake	3	—	—	—	—	—	4	—	7	—
Taylor	1	35,000	—	—	—	—	—	—	1	35,000
Unic. Navajo Co.	135	2,140,556	8	762,785	—	—	—	—	143	2,903,341
Winslow	6	170,000	—	—	—	—	7	19,900	13	189,900
PIMA COUNTY	903	24,262,663	40	10,631,880	—	—	599	6,276,919	1,542	41,171,462
Marana	1	—	—	—	—	—	—	—	1	—
Oro Valley	2	85,000	—	—	—	—	—	—	2	85,000
South Tucson	4	76,705	—	—	—	—	—	—	4	76,705
Tucson	314	6,706,387	28	7,746,880	—	—	279	4,620,545	621	19,073,812
Uninc. Pima Co.	582	17,394,571	12	2,885,000	—	—	320	1,656,374	914	21,935,945
PINAL COUNTY	93	10,268,609	7	322,910	3	14,000	47	4,289,715	150	14,895,234
Casa Grande	10	382,761	2	118,410	—	—	15	89,687	27	590,858
Coolidge	13	64,225	—	—	—	—	1	9,400	14	73,625
Eloy	5	8,800,000	—	—	—	—	4	4,107,000	9	12,907,000
Florence	1	195,000	—	—	—	—	7	19,750	8	214,750
Kearny	4	79,750	—	—	3	14,000	1	6,400	8	100,150
Mammoth	1	23,500	—	—	—	—	—	—	1	23,500
Superior	2	2,000	—	—	—	—	1	400	3	2,400
Uninc. Pinal Co.	57	721,373	5	204,500	—	—	18	57,078	80	982,951
SANTA CRUZ COUNTY	12	554,000	—	—	—	—	8	155,740	20	709,740
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—	—	3	3,650	3	3,650
Uninc. Santa Cruz Co.	12	554,000	—	—	—	—	5	152,090	17	706,090
YAVAPAI COUNTY	236	4,799,720	15	695,295	2	27,000	93	248,818	346	5,770,833
Chino Valley	19	169,050	3	61,500	—	—	14	56,750	36	287,300
Clarkdale	3	10,410	—	—	—	—	—	—	3	10,410
Cottonwood	19	99,735	2	11,500	2	27,000	2	537	25	138,772
Jerome	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Prescott	56	915,721	6	435,735	—	—	52	109,680	114	1,461,136
Uninc. Yavapai Co.	139	3,604,804	4	186,560	—	—	25	81,851	168	3,873,215
YUMA COUNTY	149	2,969,696	10	557,091	—	—	33	291,569	192	3,818,356
Parker	—	—	—	—	—	—	3	5,300	3	5,300
Somerton	3	109,500	1	2,500	—	—	2	1,300	6	113,300
Uninc. Yuma Co.	56	833,099	5	404,710	—	—	4	47,278	65	1,285,087
Wellton	—	—	—	—	—	—	—	—	—	—
Yuma	90	2,027,097	4	149,881	—	—	24	237,691	118	2,414,669
TOTAL Maricopa County, July, 1980	2,493	67,834,986	143	28,868,185	43	16,153,267	1,994	27,408,182	4,673	140,264,620
TOTAL Maricopa County, July, 1979	2,466	56,866,726	212	40,621,906	53	8,838,574	2,160	24,326,425	4,891	130,653,631
PERCENT CHANGE	1	19	-33	-29	-19	83	-8	13	-4	7
TOTAL Arizona, July, 1980	4,821	125,742,508	272	46,283,075	50	16,211,267	3,191	61,249,957	8,334	249,486,807
TOTAL Arizona, July, 1979	5,709	112,054,571	329	63,927,014	64	10,631,774	3,020	34,299,883	9,122	220,913,242
PERCENT CHANGE	-16	12	-17	-28	-22	52	6	79	-9	13

N/C: Not collected. N/R: No report; data for this month will be combined with data reported for the following month.

*Includes mobile homes.

Arizona New Housing Starts: Monthly Report

JUNE, 1980

CENSUS DIVISION	*BUILDING PERMITS ISSUED* 1* Family	Duplex	3-4 Families	5 or More	Housing Units
APACHE COUNTY	12	—	—	—	12
Eagar	2	—	—	—	2
St. Johns	4	—	—	—	4
Springerville	1	—	—	—	1
Uninc. Apache Co.	5	—	—	—	5
COCHISE COUNTY	68	—	—	—	68
Benson	3	—	—	—	3
Bisbee	—	—	—	—	—
Douglas	1	—	—	—	1
Huachuca City	2	—	—	—	2
Sierra Vista	23	—	—	—	23
Tombstone	—	—	—	—	—
Uninc. Cochise Co.	33	—	—	—	33
Willcox	6	—	—	—	6
COCONINO COUNTY	129	—	—	—	129
Flagstaff	38	—	—	—	38
Fredonia	3	—	—	—	3
Page	10	—	—	—	10
Uninc. Coconino Co.	78	—	—	—	78
Williams	—	—	—	—	—
GILA COUNTY	54	1	—	—	56
Globe	—	—	—	—	—
Hayden	—	—	—	—	—
Miami	—	—	—	—	—
Payson	25	1	—	—	27
Uninc. Gila Co.	29	—	—	—	29
GRAHAM COUNTY	26	—	—	—	26
Pima	2	—	—	—	2
Safford	5	—	—	—	5
Thatcher	4	—	—	—	4
Uninc. Graham Co.	15	—	—	—	15
GREENLEE COUNTY	1	—	—	—	1
Clifton	1	—	—	—	1
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	—	—	—	—	—
MARICOPA COUNTY	1,069	31	25	54	2,189
Avondale	—	—	—	—	—
Buckeye	—	—	—	—	—
Chandler	84	1	—	—	86
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	18	—	—	—	18
Glendale	57	2	—	—	61
Goodyear	—	—	—	—	—
Guadalupe	—	—	—	—	—
Mesa	160	7	—	5	630
Paradise Valley	14	—	—	—	14
Peoria	6	—	—	—	6
Phoenix	325	4	4	12	512
Scottsdale	78	12	10	9	203
Surprise	—	—	—	—	—
Tempe	45	4	9	22	321
Tolleson	1	—	—	—	1
Uninc. Maricopa Co.	279	1	2	6	335
Wickenburg	1	—	—	—	1
Youngtown	1	—	—	—	1
MOHAVE COUNTY	150	—	—	—	150
Kingman City	6	—	—	—	6
Kingman Area	29	—	—	—	29
Lake Havasu City	37	—	—	—	37
Lake Havasu Area	5	—	—	—	5
Mohave Valley North	32	—	—	—	32
Mohave Valley South	23	—	—	—	23
Dolan Springs	10	—	—	—	10
Sacramento Valley	5	—	—	—	5
Mohave Co. General	3	—	—	—	3
NAVAJO COUNTY	92	—	1	—	96
Holbrook	1	—	1	—	5
Show Low	11	—	—	—	11
Snowflake	1	—	—	—	1
Taylor	2	—	—	—	2
Uninc. Navajo Co.	77	—	—	—	77
Winslow	—	—	—	—	—
PIMA COUNTY	534	5	7	3	924
Marana	—	—	—	—	—
Oro Valley	1	—	—	—	1
South Tucson	—	—	—	—	—
Tucson	130	5	7	1	174
Uninc. Pima Co.	403	—	—	2	749
PINAL COUNTY	52	—	—	—	52
Casa Grande	9	—	—	—	9
Coolidge	2	—	—	—	2
Eloy	—	—	—	—	—
Florence	—	—	—	—	—
Kearny	—	—	—	—	—
Mammoth	1	—	—	—	1
Superior	—	—	—	—	—
Uninc. Pinal Co.	40	—	—	—	40
SANTA CRUZ COUNTY	8	—	—	—	8
Nogales	—	—	—	—	—
Patagonia	—	—	—	—	—
Uninc. Santa Cruz Co.	8	—	—	—	8
YAVAPAI COUNTY	128	1	—	2	155
Chino Valley	8	—	—	—	8
Clarkdale	2	—	—	—	2
Cottonwood	9	—	—	—	9
Jerome	—	—	—	—	—
Prescott	18	—	—	1	18
Uninc. Yavapai Co.	91	1	—	1	118
YUMA COUNTY	78	—	—	—	78
Parker	2	—	—	—	2
Somerton	2	—	—	—	2
Uninc. Yuma Co.	55	—	—		55
Wellton	1	—	—	—	1
Yuma	18	—	—	—	18
TOTAL, Maricopa Co., June, 1980	1,069	31	25	54	2,189
TOTAL, Maricopa Co., June, 1979	2,399	28	82	27	3,771
PERCENT CHANGE	-55	11	-70	100	-42
TOTAL, Arizona, June, 1980	2,401	38	33	59	3,944
TOTAL, Arizona, June, 1979	4,377	39	92	33	5,901
PERCENT CHANGE	-45	-3	-64	79	-33

*Includes mobile homes.

Arizona New Housing Starts: Monthly Report

JULY, 1980

	BUILDING PERMITS ISSUED				
CENSUS DIVISION	*1* Family*	*Duplex*	*3-4 Families*	*5 or More*	*Housing Units*
APACHE COUNTY	17	—	—	—	17
Eagar	3	—	—	—	3
St. Johns	4	—	—	—	4
Springerville	2	—	—	—	2
Uninc. Apache Co.	8	—	—	—	8
COCHISE COUNTY	89	—	—	—	89
Benson	3	—	—	—	3
Bisbee	—	—	—	—	—
Douglas	3	—	—	—	3
Huachuca City	3	—	—	—	3
Sierra Vista	36	—	—	—	36
Tombstone	1	—	—	—	1
Uninc. Cochise Co.	42	—	—	—	42
Willcox	1	—	—	—	1
COCONINO COUNTY	115	—	1	—	119
Flagstaff	34	—	—	—	34
Fredonia	4	—	—	—	4
Page	7	—	—	—	7
Uninc. Coconino Co.	70	—	1	—	74
Williams	—	—	—	—	—
GILA COUNTY	43	1	—	—	45
Globe	3	—	—	—	3
Hayden	N/R	N/R	N/R	N/R	N/R
Miami	—	—	—	—	—
Payson	20	1	—	—	22
Uninc. Gila Co.	20	—	—	—	20
GRAHAM COUNTY	20	—	—	—	20
Pima	2	—	—	—	2
Safford	1	—	—	—	1
Thatcher	3	—	—	—	3
Uninc. Graham Co.	14	—	—	—	14
GREENLEE COUNTY	1	—	—	—	1
Clifton	1	—	—	—	1
Duncan	—	—	—	—	—
Uninc. Greenlee Co.	—	—	—	—	—
MARICOPA COUNTY	1,799	21	10	25	2,308
Avondale	—	—	—	—	—
Buckeye	1	—	—	—	1
Chandler	203	—	1	—	207
El Mirage	—	—	—	—	—
Gila Bend	—	—	—	—	—
Gilbert	16	—	—	—	16
Glendale	104	—	—	9	156
Goodyear	—	—	—	—	—
Guadalupe	—	—	—	—	—
Mesa	235	16	2	3	308
Paradise Valley	11	—	—	—	11
Peoria	40	—	—	—	40
Phoenix	660	4	5	8	951
Scottsdale	73	—	—	5	153
Surprise	1	—	—	—	1
Tempe	94	1	2	—	103
Tolleson	—	—	—	—	—
Uninc. Maricopa Co.	356	—	—	—	356
Wickenburg	5	—	—	—	5
Youngtown	—	—	—	—	—
MOHAVE COUNTY	161	—	4	—	175
Kingman City	11	—	—	—	11
Kingman Area	37	—	2	—	45
Lake Havasu City	42	—	2	—	48
Lake Havasu Area	5	—	—	—	5
Mohave Valley North	30	—	—	—	30
Mohave Valley South	19	—	—	—	19
Dolan Springs	11	—	—	—	11
Sacramento Valley	3	—	—	—	3
Mohave Co. General	3	—	—	—	3
NAVAJO COUNTY	106	2	—	—	110
Holbrook	—	—	—	—	—
Show Low	8	—	—	—	8
Snowflake	3	—	—	—	3
Taylor	1	—	—	—	1
Uninc. Navajo Co.	90	—	—	—	90
Winslow	4	2	—	—	8
PIMA COUNTY	640	2	10	4	745
Marana	1	—	—	—	1
Oro Valley	2	—	—	—	2
South Tucson	2	—	—	—	2
Tucson	173	2	10	3	269
Uninc. Pima Co.	462	—	—	1	471
PINAL COUNTY	56	—	3	—	68
Casa Grande	9	—	—	—	9
Coolidge	4	—	—	—	4
Eloy	—	—	—	—	—
Florence	—	—	—	—	—
Kearny	2	—	—	—	2
Mammoth	1	—	—	—	1
Superior	1	—	—	—	1
Uninc. Pinal Co.	39	—	3	—	51
SANTA CRUZ COUNTY	8	—	—	—	8
Nogales	N/R	N/R	N/R	N/R	N/R
Patagonia	—	—	—	—	—
Uninc. Santa Cruz Co.	8	—	—	—	8
YAVAPAI COUNTY	150	—	3	1	166
Chino Valley	7	—	—	1	13
Clarkdale	1	—	—	—	1
Cottonwood	5	—	—	—	5
Jerome	N/R	N/R	N/R	N/R	N/R
Prescott	30	—	3	—	40
Uninc. Yavapai Co.	107	—	—	—	107
YUMA COUNTY	92	1	2	1	106
Parker	—	—	—	—	—
Somerton	3	—	—	—	3
Uninc. Yuma Co.	26	—	—	1	32
Wellton	—	—	—	—	—
Yuma	63	1	2	—	71
TOTAL Maricopa County, July, 1980	1,799	21	10	25	2,308
TOTAL Maricopa County, July, 1979	1,837	10	8	85	3,667
PERCENT CHANGE	-2	110	25	-71	-37
TOTAL Arizona, July, 1980	3,297	27	33	31	3,977
TOTAL Arizona, July, 1979	3,807	24	13	99	6,509
PERCENT CHANGE	-13	13	154	-69	-39

*Includes mobile homes

N/R: No report; data for this month will be combined with data reported for following month.

Maricopa County Retail Food Prices

JULY, 1980

Retail food prices in Maricopa County rose 1.3 percent in July, following a month of stable prices in June.

The food price survey is compiled by the Bureau of Business and Economic Research, College of Business Administration, at Arizona State University. Cosponsor of the study is Valley National Bank. The July index of 241.0 indicates that shoppers would now have to pay $24.10 for a similar basket of foods that would have cost $10.00 in 1967. These foods could have been purchased for $22.28 one year ago. The July, 1980, index reflects an 8.2 percent increase over the July, 1979, value.

The July gain was a result of increases in all of the subgroups. The largest hike occurred in *Fruits and Vegetables* (3.3 percent), followed by gains of 1.3 percent in both *Meat, Poultry, Fish, and Eggs* and *Dairy Products. Cereal and Bakery Products* and *Other Foods* each showed a rise of 0.5 percent.

The relatively large jump in *Fruits and Vegetables* was due primarily to the rising prices of potatoes (49.5 percent), oranges (10.8 percent), and other fresh vegetables (21.6 percent). These increases were only partially offset by drops in lettuce (-35.5 percent) and tomatoes (-29.3 percent).

Prices climbed in almost all categories in the *Cereal and Bakery Products* subgroup. Sweet rolls, coffee cake, and doughnuts escalated 3.9 percent, followed by cereal (2.5 percent) and white bread (1.9 percent). These increases were counteracted by specials on items in the fresh biscuits, rolls, and muffins category, which dropped 16.7 percent.

Most prices in the *Dairy Products* subgroup remained stable during the month of July. Exceptions were ice cream and related products which edged up 2.9 percent, and cheese, up 2.3 percent.

Mixed price changes were posted in the *Meat, Poultry, Fish, and Eggs* subgroup. A drop in the price of noncanned ham (-9.9 percent) and organ meats (-2.7 percent) was matched by an upward surge in bacon prices (9.7 percent). Most beef items were up, notably rib roasts (6.2 percent), along with canned fish and seafood (3.8 percent) and eggs (2.3 percent).

The price of sugar and artificial sweeteners jumped 10.2 percent in the *Other Foods* category, followed closely by frozen prepared food (8.5 percent). These increases were slightly offset by a reduction in cola drinks, excluding diet cola (-5.2 percent).

A comparison of the April Food Consumed at Home Index for Maricopa County with index values for four selected metropolitan areas reveals that the cost of the specific food group in April, 1980, (obtainable for an outlay of $10.00 at 1967 average prices) was $23.56 in Maricopa County, which is lower by nearly a dollar or more than the comparison areas. The April index recorded $24.65 in Los Angeles-Long Beach; $24.90 in San Francisco-Oakland; $24.83 in Chicago-Northwestern Indiana; and $24.53 in the United States (average).

INDEX FOR FOOD CONSUMED AT HOME
(Average 1967 = 100 percent)

Group	*Maricopa County July '80*[a]	*Maricopa County April '80*[b]	*United* States* April '80*	*Los Angeles-Long Beach* April '80*	*San Francisco-Oakland* April '80*	*Chicago-North-western Indiana* April '80*
Food Consumed at Home	241.0	235.6	245.3	246.5	249.0	248.3
Cereals and Bakery Products	230.3	227.7	242.0	250.8	250.6	248.2
Meats, Poultry, Fish, and Eggs	244.0	244.4	235.1	239.4	243.8	243.6
Dairy Products	213.0	207.0	222.4	215.1	213.3	215.9
Fruits and Vegetables	225.0	210.7	240.9	236.8	243.0	247.8
Other Foods Consumed at Home	269.4	262.8	295.1	293.3	303.4	297.7

*Computed from data contained in *The Consumer Price Index*, U.S. Department of Labor, Bureau of Labor Statistics, Washington D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

[b] Comparisons of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Maricopa County Retail Food Prices

AUGUST, 1980

Retail food prices in Maricopa County rose 1.6 percent during August, following a 1.3 percent increase in July.

The food price survey is compiled by the Bureau of Business and Economic Research, College of Business Administration, at Arizona State University. Cosponsor of the study is Valley National Bank. The August index of 244.7 indicates that shoppers would have to pay $24.47 for a similiar basket of foods that would have cost $10.00 in 1967. These foods could have been purchased for $22.09 one year ago. The August, 1980, index reflects a 10.8 percent increase over the August, 1979, value.

The increase in the August index value was due to gains in all but one of the subgroups. The largest increase was in *Meats, Poultry, Fish and Eggs* (3.7 percent), followed by *Cereals and Bakery Products* (1.4 percent), *Other Foods* (1.2 percent), and *Fruits and Vegetables* (0.4 percent). These gains were only partially offset by a decline of 0.8 percent in *Dairy Products*.

Mixed changes were reported in *Meats, Poultry, Fish, and Eggs*. Pork items were up, especially noncanned hams (22 percent), followed by pork roasts and steaks (9.9 percent), and bacon (5.3 percent). Poultry prices also rose, including fresh whole chicken (15 percent) and fresh or frozen chicken parts (8.2 percent). Other items that climbed in August were frankfurters (16.4 percent), and eggs (5.9 percent). Only partially offsetting these increases were the declines in most beef prices, notably sirloin steak (-5.3 percent), and rib roasts (-5 percent).

The increase in *Cereals and Bakery Products* was primarily due to a jump in the fresh biscuits, rolls, and muffins category (21.8 percent), and in cereal (1.6 percent).

Rising prices for nonalcoholic beverages were primarily responsible for the gains in *Other Foods*. Cola drinks, excluding diet cola, advanced 5.1 percent, followed by other noncarbonated beverages excluding coffee (3.4 percent). The boost in this subgroup was offset in part by declines in candy/chewing gum and sugar/artifical sweeteners, both down 1.6 percent.

The moderate increase in *Fruits and Vegetables* reflects fluctuations in all categories of this subgroup. Miscellaneous fresh fruits (notably lemons) rose 18.6 percent, along with apples (9.9 percent), and tomatoes (9.6 percent). Lower prices, however, were posted for celery and cucumbers in the miscellaneous vegetable category (-14.6 percent), bananas (-9.9 percent), and potatoes (-7.2 percent).

Prices this month in the subgroup *Dairy Products* remained steady or fell slightly. Fresh milk and cream decreased (-3 percent) as did butter (-0.7 percent), and cheese (-0.6 percent).

A comparison of the May Food Consumed at Home Index for Maricopa County with index values for four selected metropolitan areas reveals that the outlays required to purchase a foodstuffs group in May, 1980 (obtainable for an outlay of $10.00 at 1967 average prices) were $23.78 in Maricopa County, $24.55 in Los Angeles-Long Beach; $24.81 in San Francisco-Oakland; $24.95 in Chicago-Northwestern Indiana; and $24.65 in the United States (average).

INDEX FOR FOOD CONSUMED AT HOME

(Average 1967 = 100 percent)

Group	*Maricopa County August 80*[a]	*Maricopa County May 80*[b]	*United States* May 80*	*Los Angeles Long Beach* May 80*	*San Francisco Oakland* May 80*	*Chicago North-western Indiana* May 80*
Food Consumed at Home	244.7	237.8	246.5	245.5	248.1	249.5
Cereals and Bakery Products	233.5	227.7	244.5	251.4	251.3	251.4
Meats, Poultry, Fish, and Eggs	253.0	239.0	231.5	231.7	239.6	238.1
Dairy Products	211.4	210.6	226.2	215.6	217.7	225.8
Fruits and Vegetables	225.9	221.5	246.6	239.2	237.8	249.0
Other Foods Consumed at Home	272.6	268.2	296.6	298.2	306.2	302.8

*Computed from data contained in *The Consumer Price Index*, U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C.

[a] Maricopa County food prices are reported for the month closest to publication.

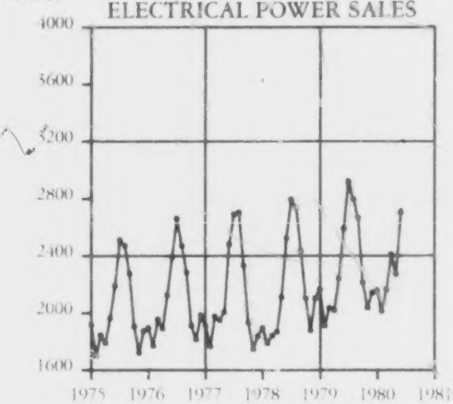
[b] Comparisons of food prices among various cities and the United States average are made on the basis of earlier months because of the lag in collecting price reports from these other areas.

Note: Index comparisons between Maricopa County and the other regions show only that food prices in Maricopa County have increased more or less than food prices in the other regions since 1967. The indices cannot be used to determine the actual differences in food price levels between the regions.

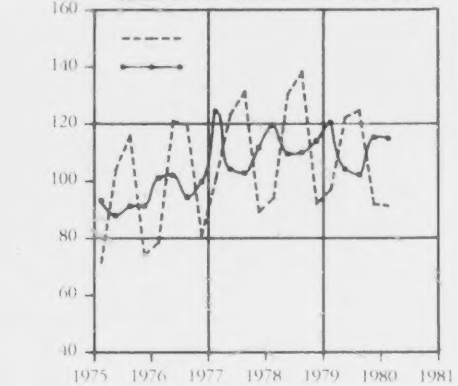
Source: Bureau of Business and Economic Research, College of Business Administration, Arizona State University, in cooperative cosponsorship with Valley National Bank.

Arizona Economic Indicators

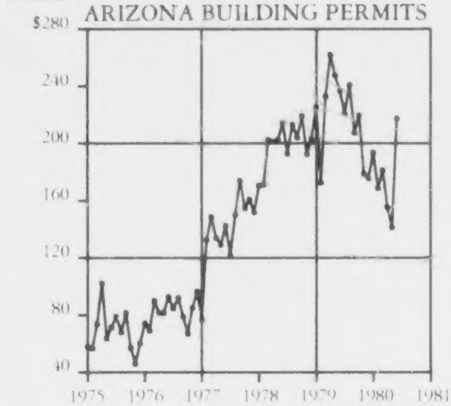
ELECTRICAL POWER SALES



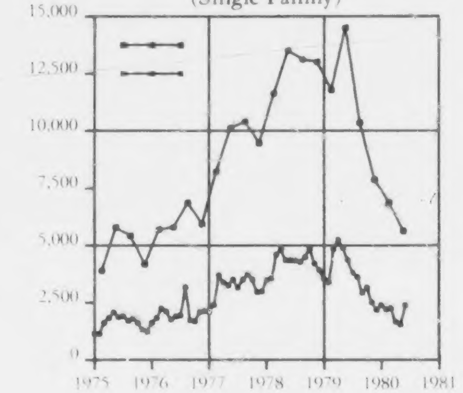
ARIZONA TOURISM INDEX



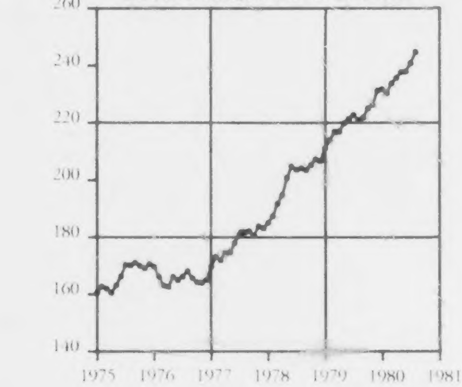
ARIZONA BUILDING PERMITS



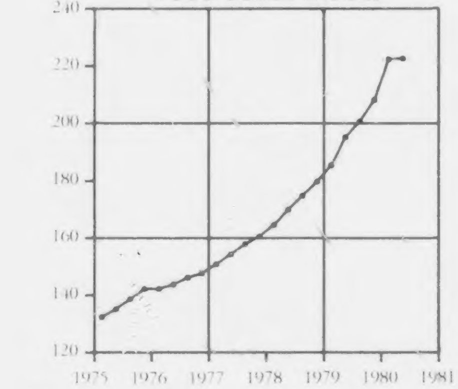
ARIZONA NEW HOUSING STARTS
(Single Family)



METROPOLITAN PHOENIX
CONSUMER PRICE INDEX



METROPOLITAN PHOENIX
FOOD PRICE INDEX



Source: All data compiled by the Bureau of Business and Economic Research, College of Business Administration, Arizona State University.